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GLEANINGS

A JOURNAL DEVOTED
TO BEES,
AND HONEY,
AND HOME
INTERESTS.

BEE CULTURE

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A BEE'S EGG is $\frac{1}{16}$ inch long and $\frac{1}{10}$ in diameter—five times as long as it's thick.

A NOVELTY in the way of honey-packages at Vienna were little glass casks with aluminum covers.

THE *British B. J.* says giving bees wet combs to clean up at the time of uniting will make them fight.

A. I. Root is all right, but "The A. I. Root Co." is better, and the change of name ought to have been made before this.

ALL RIGHT, friend Root, I've been much interested in the Salvation Army, and will learn some of their hymns first chance.

INCREASED ADULTERATION of comb foundation is complained of in Germany. Fortunately that doesn't trouble us here yet.

"ALACK THE DAY when a man can not speak well of his friends for fear he will be accused of self-interest," says Hutchinson. "Amen," say I.

REFERRING to that statement on page 912, I saw in a foreign paper lately a similar statement, preferring coffee A to granulated sugar for feeding.

"WHO CAN SAY how much of the anæmia, headaches, chorea, and other ailments of schoolchildren, is due to the eating of glucose candy?"—Dr. Eccles in *N. Y. Med. Journal*.

A CONTEST in making foundation with the Rietsche press took place at the great convention at Vienna. One man made 5 sheets in 7 minutes; another in $7\frac{1}{2}$ minutes, and another in 10.

SOMNAMBULIST has a good report of the St. Joe convention, in *Progressive*. I didn't see any one there that looked like a sleep-walker. Who is he, anyhow? [I know, but dare not tell for fear I'd be wrong.—Ed.]

"AND THERE IS a pitch-dark room, where some day they hope to experiment with bees." So says J. E. Jenks, in *Harper's Young People*,

about the insectary at Washington. Will friend Benton or some one else tell us what that means?

"TRAVEL-STAINED" is not the happiest word to apply to sections somewhat darkened, if I am correct in the supposition that the darkening occurs principally from bits of dark wax being deposited on them from the brood-combs.

GLEANINGS and *A. B. J.* are emphasizing the fact that bee-keepers can't do without bee-journals; but don't you editors get to holding your heads too high, for I give you notice that bee-journals can't get along any better without us, the subscribers.

A QUEEN isn't very much of a queen if she can't lay half a mile of eggs in her lifetime. [This seems like a big whopper of a statement; but perhaps it is all right. To verify it with figures scares me; so I'll try to swallow it, since it is dished up by Dr. Miller.—Ed.]

THE LUBRICANT used in making foundation at the Vienna contest was: One part extracted honey, two parts water, and three parts alcohol. This was on the Rietsche press, but I suppose it would be all right for any foundation. [Why didn't they use soap? It's far cheaper.—Ed.]

A FROZEN BIT put into a horse's mouth is simply barbarous. It takes a good while to warm it by blowing your breath on it. Lay it against the horse's coat, then blow on it, and see how much sooner you can warm it. [This is one of the things the doctor knows.—Ed.]

BALDENSBERGER, in *B. B. J.*, indorses Cheshire's statement that *Apis dorsata* migrates at certain seasons, and that they can not be kept back from these journeys any more than "swallows or storks may be kept back from flying to southern climes when winter approaches."

TO PREVENT crystallization of sugar-syrup, *L'Apiculteur* recommends adding a little common salt. [Fudge! leave out the salt and all such, and make the syrup thinner, half and half. I don't know about the salt; but the acids are not reliable, and too much, I opine, would be dangerous.—Ed.]

FRIEND NORMAN shows on p. 902 that I've gone all wrong on the Layens hive. But you see it's all the fault of Mr. Bertrand, who will persist in printing the excellent *Revue Internationale* in French, instead of printing it in English, that any one might read and understand.

L'APICULTEUR reports a case in which a bee-keeper left some bees with a farmer, A, who rented his farm of B. A got behind on his rent; B levied on the bees and sold them, which the law allowed, because B had not been previously notified who was the real owner of the bees.

EXTRACTORS with the driving power at the bottom, so as not to be in the way of the free handling of the combs, are among the late introductions in Europe. [We in America get at the same result in a simpler and less expensive way—a beveled gear, shaft and handle outside of the can.—Ed.]

MICHIGAN State Agricultural College Experiment Station encourages trial of rape as a forage plant; but I'm afraid it won't help bees much, for the kind recommended, Dwarf Essex, does not blossom the first year, and the Hybrid Bird rape, which is an annual and a great bloomer, is comparatively worthless as a forage plant.

THE *American Bee keeper* says no better place could have been decided upon than Toronto for the next N. A. B. K. A. convention, but warns its readers to be on the lookout for exorbitant rates for board and lodging. The Kanucks did the nice thing by us when the convention was there the last time. [And they'll do it again.—Ed.]

EDITOR YORK was banqueted along with a lot of editors and publishers, and it had a good effect on him. Getting in such a nice crowd he concluded he was only a single individual, and in an editorial report he uses the singular number throughout, using "me" instead of "us." That's right, George; a man who has the snap you have should get in front of the procession among the progressives.

A SUPER-CLEARER described by C. Davenport, in *A. B. J.*, consists of a bottom-board set on top of the hive, and the super set on this, with a hole in front large enough for one bee to pass out easily. Put on at night and take off empty next morning. As the entrance opens outside, there's nothing to hinder robbers entering; but after 13 years' trial, generally with 300 colonies or more, he has never had trouble with robbers.

MAILING QUEENS to Australia has been a losing business. C. Mansfield, in *A. B. J.*, lays at least part of the mortality to the food absorbing turpentine from the pine wood of the shipping-cages. On reaching Australia the candy tastes plainly of turpentine, and in one

case he put a fresh queen and bees in a cage received, and every bee died in three days. [If the candy-hole of the cage is painted with paraffine, this could not be. All our cages, whether for foreign or domestic use, are so treated. The trouble, in our own case at least, has not been from the wood, but from the adulterated sugar that we *supposed* was pure. Since discovering this fact we have had a fair measure of success.—Ed.]



LOCATING AND MANAGING OUT-APIARIES.

A VALUABLE AND PRACTICAL TREATMENT OF THE SUBJECT, FROM A PRACTICAL MAN.

By E. France.

I have several letters from different parts of the country, asking advice about starting and managing out-apiaries. I will copy a part of one of them, as I think some other man who has several out-apiaries will give his plan, or manner of handling out-apiaries, etc. I know we don't all manage our out-yards the same way; so if there are several plans laid out, the beginner can choose for himself, or, perhaps, combine some parts of each to suit his fancy. Here is the letter:

I am thinking of starting some two or three out-apiaries besides the home apiary, and I am at a loss to know just the best way to conduct them. I have become acquainted with your name through GLEANINGS, and know that you have several yards besides your home yard, so I have concluded that your counsel would be worth something if you would be so kind as to give it. What I want to know is this: What arrangement do you make with men who take care of them? and how do you pay them? I think Captain Hetherington does not have any help. My plan is this: To put out two yards, of 50 stands each, next year, and get some one to just watch the swarms, and give them for me; and I had thought of paying 50 cts. a swarm, while I will tend to the rest of the work in connection with farming, as they are a little uncertain. Do you think 50 cts. a swarm is too much? Do you think it is best to work for comb honey alone, or comb honey and extracted together? We have always worked for comb honey alone.

He says bees pay only in connection with farming. Then follows the address, but I can not make it out. It is somewhere in Indiana. I find that a great many people are very careless in giving their name and address. By all means, write names plainly. After consulting several good scholars to make out the address, I wrote to him saying that I would answer him through GLEANINGS, posted the letter, and it went to several postoffices in Indiana and Ohio, and then came back to me, marked "Could not find him." But now to answer his letter and

several questions from other parties, on the same subject.

In the first place, our friend will find he has something to do besides farming if he works two out-apiaries of 50 colonies besides his home yard, and does all the work himself except hiving swarms. I should say that 50 cts. a swarm would pay for the hiving if that were all. But how about watching for swarms? Then is the man who furnishes the location to have nothing for his bother in having the apiary of from 50 to perhaps 100 colonies on his place?

WHERE TO LOCATE THE OUT-YARDS.

First, let us locate the apiary. Now look sharp, for very much depends on the location; in fact, more than half of the success of the apiary rests on this one point. See that the place has good pasture for the bees. We in this north country would want plenty of white clover and basswood timber, and river-bottom land with fall flowers. Any way, be sure of good bee-pasturage. Then I want a good natural windbreak—hills or timber, or something to break the north and west winds.

Now, if we have found all this, is the right kind of man or family living on it? If the family are all right, what are the neighbors? Are they of a class that will steal, or make you trouble?

If the people are all right we will look the place over. Is the place where we want to put the bees too near the house or barn or stack-yards, where they have to come with teams to stack and thrash the grain? It won't do at all to have horses very near the apiary when unloading grain or hay, or thrashing, or any thing of that kind. A bee in the ear of a horse makes it wild. Most horses are afraid of bees. Our apiaries are from 15 to 30 rods away from house or barn or stack-yards, and all the out-yards are from 30 to 100 rods from a public road. Most of them are in pasture land, free to all kinds of stock. Stock don't do any damage to our large quadruple hives, but keep down the grass. It saves us the trouble of mowing. Locate your apiaries three or four miles apart; farther would be better. Of course, other folks' bees must be taken into consideration. Don't overstock the pasture. Better go two or three miles further than accept a poor location, for we have to go with team; and when on the road, two or three miles further is soon traveled. We go eight miles to some of ours.

One more thing: If you are likely to get a load of bees or honey, it is handy to load up right in the apiary. After we have worked the apiary all over, the bees will be cross. We can not take the team to the wagon where it is in the apiary, to hitch on. We must have a down grade, away from the apiary. It should be 15 to 20 rods or more, then the wagon can be moved by hand to a place where it will be safe to come with a team.

Now, if we have found the location that will answer our purpose, we shall see what terms we can make with the owner. All our out-apiaries are planted on the same conditions. We give 25 cts. a year for each colony that we have on the ground, spring count, counting them about the last of May, or at a time when we are sure there won't be a less number. The land-owner has nothing to do with the bees, except, if any thing happens that requires our attention, he is to let us know, and we look after them. There is no watching for swarms, and no swarms to hive.

We work all our out-yards for extracted honey. We think it is less work for the money we get out of the business.

HIVES.

If I were starting new in the bee-business I would use the L. frame, standard size. I would use a quadruple hive, chaff-lined, three stories in summer and two in winter, and winter on the summer stands.

WHAT KIND OR RACE OF BEES?

My candid opinion is, there is not much difference. With good location and good management, any of them will give lots of honey. But my choice are the gray Carniolans. They will gather as much honey as any; are very prolific, and do less stinging.

Now, having located the apiary, made terms with the land-owner, and having bees on the ground, we will proceed to run the apiary for extracted honey. We will begin with the fruit-blossoms. If there is any considerable amount of bloom we can open hives without danger of robbers. We will suppose the bees are in L. hives, two stories high. Take out all the combs and clean out the hive; clip the queen's wing one side. You will find that all or nearly all the brood is now in the second story. Put all the brood down in the lower story. If there are not enough combs with brood in them to fill the lower story, perhaps some other colony may have more than enough to fill the lower story. In that case, give the surplus to the weaker ones. Put the honey-combs in the second story. If there are empty combs, and the lower stories are full of brood, put the empty combs above. *Caution.*—If the bees average weak, and there are not combs with brood in them enough to fill the lower story, then I would wait until they have enough, as the upper story is warmer, and a weak colony will build up faster with the brood above. But, clip your queens at this time. We can now leave the yard for ten days; then, if there were no queen-cells left when here before, it is not possible for a swarm to have gone off; and here in this country it is not likely that a swarm has been out. Dandelions will be in bloom here then.

We will now look the yard over again. If there are any weak colonies, they should be

strengthened by giving them brood from the strong. If there is more brood in the yard than to fill all the lower stories, then the surplus can be used to make new colonies. In making new colonies, be sure to leave the old queen in the old hive. Fill up a lower story with combs of brood, with some honey. Put the honey at the back of the hive; take some bees with the combs—enough to make a good strong colony. In fact, give them more live bees than you want to stay there, because the old bees will go back to the old hive. We can take these combs and bees from several colonies. They won't quarrel or fight at all. We may make one, two, or several new colonies at this time—it depends on the strength of the apiary. Those new colonies have no queen; they won't swarm under 12 days. The old ones won't swarm, because we have taken away their surplus strength. We will now leave them ten days; but before we leave, be sure that there are no queen-cells coming on in any colony. I would leave those new colonies one story high. We use a solid honey-board. Lay that on top of the one-story, and cover over that.

In ten days we are back again. Now, if there is more honey coming in than enough to keep the bees, we will extract all we can get. This extracting will be dark, and the bees will soon be gathering white honey. For that reason we want to clear the combs of dark honey; and while doing it we will do as we did before—keep the lower story full of brood; and if there is more brood, we will make new colonies as we did when here before. Now we will put on the third stories, filled with empty combs, if we have them. If we have no combs, put in frames filled with foundation; leave no queen-cells in the old colonies; the new colonies made ten days before will now want the second set of combs, or foundation, and their queen-cells removed, except one, that we will leave to hatch; also, give these colonies one egg-comb from the old stocks, and what new colonies are made this time can be supplied with a queen-cell from those new ones made ten days before. After this, if honey pasturage is good, extract once a week while the season lasts, working all up to three stories high. Keep the brood in the lower stories, and extract from the two upper ones. Watch the harvest, and give the bees time to fill the upper story solid full of honey to winter on. All they get more than that you can take in September.

We don't get any honey here after the basswood, about the middle of July. We let them fill up well on basswood, and then let them alone until the middle of September; then I take off the third stories and pack them away in the storeroom. At this time I see that the second story is full of honey; take out of the second stories all combs not full of honey, and fill it out from the third; see that all have that much, and pack away in the house the surplus;

fill the top chamber with straw, and you are ready for winter.

The next spring, when there are warm days in March or April, look into each colony and see if they have plenty of honey. If they are short, take out empty combs and put in full combs of honey from those stored away in the fall. Be sure they have plenty; they will use up honey pretty fast now, as they should be raising brood fast.

A TENT EXTRACTING-HOUSE FOR OUT-YARDS; HOW TO MAKE.

I omitted to build an extracting-house. You want one in every yard. We use a tent, just 10 feet square, outside measure. Put up a frame in each yard; get 4 posts, 10 feet long; set them 3 feet in the ground, 10 feet square, outside measure. Now nail on at the bottom a ten-foot board on each side, a foot wide, then nail around the top four more boards a foot wide, 10 feet long; that will leave a space of 5 feet between the upper and lower boards. Get 80 feet of thin cotton cloth, a yard wide; sew two breadths together, 40 feet long; that will just go around your house for siding, between the upper and lower boards. Sew on both upper and lower edge some strips 3 or 4 feet apart—leather—to tack through in putting on the siding. For top cover we use eight-ounce duck that will shed rain if we have a shower while we are there. Put up a gable-end roof, raised 3 feet in the middle. To do that you want two boards a foot wide, 10 feet long; set one up at each end, and nail to top and bottom board, and slant off the top corner to fit the pitch of the roof; then nail in at the top a 2x4 scantling, 10 feet long; chamfer off the upper edges to fit the pitch. Nail on to the end boards some strips of boards to make a ladder to climb up when you put on the top cover. Make the cover to fit your frame, and sew on to the bottom edge some strips of leather to tack through when you put it up. You want a frame in every yard; but the cloth part you can take down every night and put it in a sack and take it home. One cover and siding is enough for all the yards. Each yard must have a frame. With us it takes just five minutes to put on the cloth. For a door, we can leave one end of siding loose at the bottom, or can put in a screen-door.

Platteville, Wis.

[There are no bee-keepers in the whole United States who have their work better systematized than E. France & Son; and this applies not only to their bees but to their fruit-growing. When I visited them this past summer I could readily see one secret of their success—the evidence of a liberal use of good brains to lessen the labor of the hands. I am sure no bee-keeper can afford to fail to read carefully what Mr. France has to say, even though he may not now or ever expect to have out-aparies. I can not refrain from saying that the senior France not only recommends, after having tried other frames, the Langstroth, but the eight-frame size of the hive. No deep frame is adapted for tiering up, and hence the Langstroth, if for no other reason, should have the preference.—ED.]

EXTRACTING IN NOVEMBER.

ADVANTAGES OF A REVERSING MACHINE.

By S. E. Miller.

As it happened this year, we had very little extracted honey, as all strong colonies were run for comb, and the weak ones gathered little more than enough to keep them in stores; so autumn found us with no extracted honey on hand. However, some colonies filled their upper stories pretty well with autumn-flower honey, and this, owing to pressure of work, remained on the hives until Nov. 23d (some is on yet). On that day I took off four supers; and as the day was warm I tried to extract some, as we had an order from our best customer for two or three gallons; but it was too cold, and would not work. I therefore took the supers into father's kitchen, as his house is nearer the apiary than ours, and placed them beside the cook-stove. The following day, just after noon, I commenced extracting, and succeeded in getting most of it out with the Cowan Rapid. I would place the combs in the basket; turn rather fast until about half was thrown out, then reverse and turn at about the same speed, until about half was out of the other side of the combs; then increase the speed till it hummed like a buzz-saw, then reversed again, and threw the rest out of the other side. In this way I succeeded in getting the combs pretty clean, though, of course, not as in warm summer weather. With a non-reversible extractor it would have been almost impossible to accomplish the work—at least, without a great deal of extra work, taking out and putting back the combs, and perhaps breaking many. Of course, it is not often necessary to extract in November; but if circumstances should be such as to make it necessary, the Cowan will do the work if the combs are warmed, as explained above. I have never had any experience with any other reversible extractor; in fact, I have never seen any thing more than a cut of them; but if I may judge from appearances,

THE COWAN RAPID LEAVES NOTHING MORE TO BE DESIRED,

and I believe that, with the multitude of bee-keepers, it will give greater satisfaction than any of the self-reversing or automatic machines. We have had our Cowan for two seasons; but, owing to running mainly for comb honey, and poor seasons, I have had little use for the extractor; but in what little I have used it I find that one will soon learn the trick of reversing without entirely stopping the machine; and, considering that the crank of automatic reversing machines must be reversed in order to reverse the combs, I am inclined to think the Cowan the most rapid of any machine of the same number of combs capacity. Of course, this is mainly theory with me; but can any one prove by actual test that an auto-

matic machine will extract any more honey in a given time? The Cowan is built for business, and is not likely to break down, as I think I gave it a very thorough test, as spoken of above. I should certainly have been afraid to run at such speed the Novice we used to own as I run the Cowan.

Bluffton, Mo.

[The foregoing may seem like an "advertising puff," but it came unsolicited. If the reversing machines have substantial advantages over the non-reversing, they should be set forth in the reading-columns. I can not understand why any one should argue for the old non-reversing extractors. They are to the reversing machines what the old muzzle-loading firearms are to the breech-loading guns. And yet some prefer the old style, and think them better, and so the case is with extractors. I may remark, inadvertently, that I have been out hunting of late, under the doctor's orders, and I think I know something about guns as well as extractors. Say—outdoor air is the best tonic in the world.—Ed.]

RAMBLE 122.

AT SAN LUIS OBISPO AND OTHER PLACES.

By Rambler.

San Luis Obispo (Saint Louis the Bishop), or San Luis, as it is called for short, is something of a city for this portion of the Pacific coast. Its population is about 3000. It was founded by the early Spanish padres, and a mission was planted here. It is in a good state of preservation, and, having been modernized, its ancient appearance has in a measure disappeared. The chief industry of the town seemed to be the saloon business, one bearing the name of "Blazing Stump." From an outside observation, and the sounds of music and shouting heard within, the stump was blazing fiercely. San Luis has heretofore held commercial intercourse with the outside world through Port Harford and the coast steamship lines; but the city now expects a boom in all of its interests from the fact that the Pacific Coast Railroad has penetrated the surrounding mountains, putting the city within a few hours of San Francisco, and the progress of the road south will put it in close connection with Los Angeles, the other metropolis of California.

When in Ventura, Mr. Mendleson, having in mind my desire to learn of the honey resources of San Luis Co., referred me to a Mr. Butcher. Said Butcher was Mr. M.'s agent for the sale of honey. I accordingly hunted up the gentleman, and found him to be a butcher only in name. By nature he was a hardware merchant; and at certain seasons of the year, when Mr. Mendleson had honey to ship to him, he made a lawful mix of the sweets in a trading way, with his ice-cream freezers, saws, and hammers. I soon discovered that Mr. Butcher was not heavily charged with information in relation to the honey production in Saint Louis the Bishop's Co. In fact, come to reflect soberly upon the

subject, it is too much to expect that a fellow-mortal, indulging in the daily habit of weighing out wire nails, selling wire fences, egg-beaters, carpet-stretchers, sausage-stuffers, and other destructive implements, could talk euphoni-ously of queen-bee parthenogenesis, or even of Dovetailed hives and bee-spaces. Mr. Butcher did not know of a bee-keeper in the county—not even the German grave-digging apiarist—and did not believe there was one; if there was, he

bees would barely make a living. He clinched his information by remarking that he believed it not much of a honey country any way.

Like all true bee-keepers, Mr. Brown had a few bees, and was determined to find out the capabilities of the country. He advocated the Hoffman frame and all modern appliances, and believed, after visiting different portions of the State, that Saint Louis the Bishop's County was the best portion of it, if not for bees, for

other general agricultural purposes. I was glad to see Mr. B. so enthusiastic over the country of his choice. By so doing he showed forth the true California spirit.

Mr. Brown's son-in-law here put in an appearance on a big wagon. He also had been interested in bees—a sort of reflection, perhaps, from Mr. B.; at any rate, introductions and another time that kind o' loosened up our heart-strings, was indulged in. The Rambler was urged to share the hospitalities of the Brown mansion; but as it was several miles away from our route I cast my re-

grets at them, and we parted with mutual wishes for prosperity and long life.

Your readers probably remember the episode of Billy and his teacher. Teacher says, "Now, Billy, it is south in front of you; what is it behind you?" "My coat-tail, sir," says Billy, promptly, giving a side cant to his head to get a view of that appendage. Well, early the next morning San Luis Obispo, like Billy's coat-tail, was behind us, and we were again enjoying the enchanting views attendant upon climbing up



OUR FIRST COYOTE.

surely hid his candle of bee-lore under a bushel. Honey was shipped in from San Francisco in small packages, but he preferred to sell Mr. Mendleson's honey because he was satisfied it was pure. After thus scoring a good point for Mr. M. and Ventura Co. honey, my Butcher was called away to weigh out some more nails, and another gentleman took up the conversation. I soon discovered that this man had been there with a bee-veil on, and had produced his tons of honey. The tons, though, were produced away back east, in Missouri and in Ohio, where he originally came from. Referring to Ohio I asked him if he was acquainted with GLEANINGS.

"Oh! yes," said he. "I always read it with profit; but since I came out here, about a year ago, I have not taken it. And, by the way, I wonder where that Rambler fellow is now who used to write for it."

I smiled a little in my sleeve. It was a different smile from my Wilder deer-sign smile—not sarcastic, but a sort of mellow fraternal smile. I handed him my card, whereon were my credentials. He seemed very happy to meet the Rambler, and we just fraternized with alacrity, and with a sort of Salvation Army cordiality, for the space of half an hour or more. The gentleman lived a few miles down from town, and his name was Brown—J. M. Mr. Brown gave me the information that there was a large number of honey-producing flowers, but this year there seemed to be no honey in them, and



COWGIRLS.

through the winding course of a canyon, which we surmounted when we crossed the Cuesta Pass, and struck into the tail end of another canyon. We were now in a country admirably

adapted for the home of wild animals—no habitations for miles; wooded places and brush;

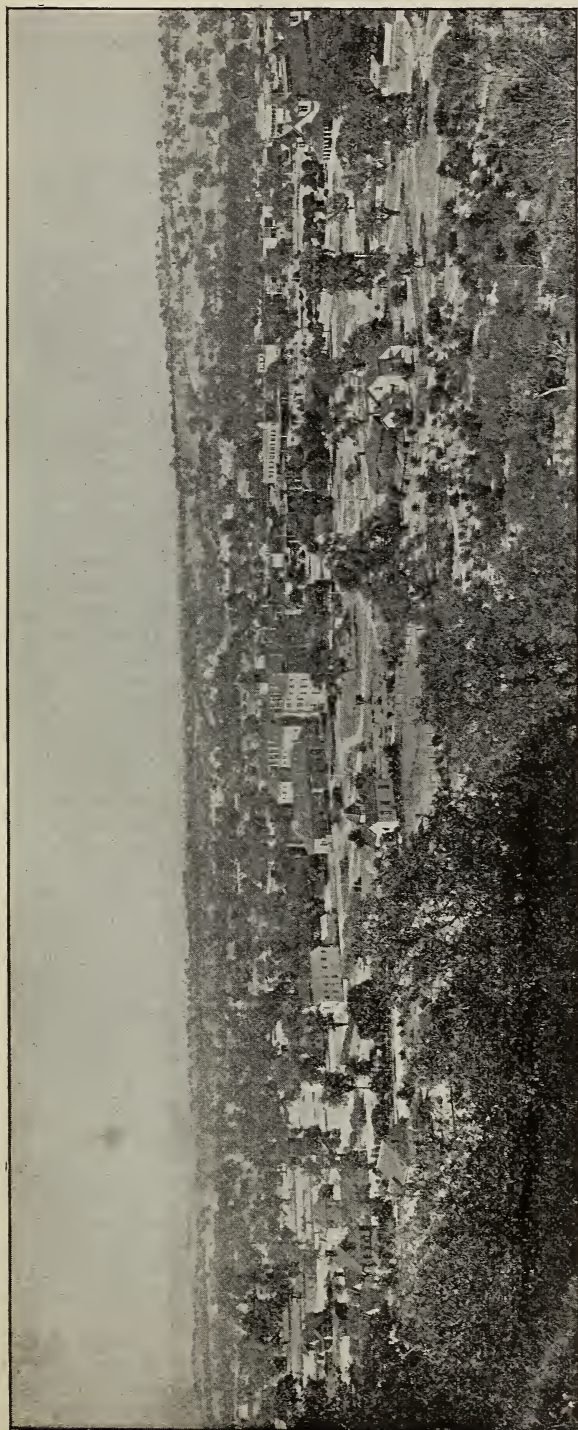
little side-canyons, just enough for their lurking-places. Mr. Wilder had been playing the deer-racket so much that he began to hanker after other game; and right here, while going up grade at a ruminating pace, he espied a coyote shambling along, about 400 yards away. There was a scramble for the rifle through the little square window in front of our wagon cover. The coyote was very accommodating, and halted. Bang went the rifle; a little puff of dust a few inches below the coyote led that animal to dig his toe-nails into the ground, and get away with lightning rapidity. Another ball or two followed him, but he escaped into the brush. Mr. Wilder regretted the escape, for every coyote's scalp is worth \$5.00. I consoled him by telling him that, in all instances where there was a bad beginning, there was usually a good ending; and, citing him to the bad beginning on deer, said I, "We will get the next coyote, just as we did the deer."

THE PASS OF THE OAKS.

"We!" says Mr. Wilder; and such a bygone, scornful expression came over his face that utterance was checked for some little time.

When we debouched from the next canyon we entered the Santa Margarita (Saint Margaret) Valley. The chief characteristics of this region were the rolling nature of the country, the number of stock-ranches, and the number of horsewomen we encountered. They were dear young women. Mr. Wilder put on his eye-glasses (a habit he has when he wishes to bring out all of the salient features of the landscape). The first dear young lady had been roping a cow, and was leading it to the corral in triumph. This pastoral scene brought to mind a verse from the poets. The indulgent parent desired his daughter to whistle. He said:

"Whistle, daughter, whistle,
And I'll give to you a cow."
She said, "I never whistled,
And I can not whistle now."



He said, "Whistle, daughter, whistle,
And I'll give to you a man."
She said, "I never whistled, father,
But I'll do the best I can."

This dear daughter whom we met had evidently a predilection for the cow—sensible dear!

A little further along, two more dear young ladies were rounding up a band of horses. True to the instincts of a dear-hunter, (dear) Wilder was anxious to mingle in the fray. These dears had evidently progressed from the cow whistle, and might be indulging in the more ambitious whistle for the man. I was determined my partner shouldn't be the man; put whip to the ponies, observing that the dears were remarkably vigorous and healthy in appearance. I further observed that they could rope a horse better than W. could, and he would only make them a subject for jest in his efforts to help; that they were evidently in their sphere, "and I am glad of it," said I. "It is just as well to have cowgirls as cowboys."

We got safely past the dear ones; but there was something wrong in my remarks, for the watchful fates somehow turned the ankle of my pony Reina, and she went lame. We had some anxiety over it; and when we came to a wayside house in the middle of the afternoon I was willing to camp. A near approach to the house proved it to be a wayside saloon. There were three women under the awning, and a Spanish youth. I wished to make amends for what I had said about the cowgirls, and found these ladies, of various ages, so sociable that I wanted to camp right off. One of them, furthermore, reminded me of an old maiden aunt back east.

"Why, Wilder," said I, "just see how home-like and sociable it looks under that awning. Then, they say there's no water until we get to Creston. Our Reina is lame, and they are so sociable."

But Wilder was inexorable, just as I was in the recent dear-episode. He called them all old bilks, or something to that effect; didn't like their saloon principles, and didn't believe it best to stay. The Mexicans' eyes followed our movements, with a basilisk look, and I finally concluded, with Mr. Wilder, that we had better proceed. From his remarks about the ladies I expected his pony Keno to get lame; but he did not. Another coyote crossed our path, but vanished too suddenly for a shot. We found plenty of water along the way, proving that the three women saloon-keepers were lurers, and we rejoiced that we escaped their lures. We camped that night in Creston; and the next day, after a slow and toilsome drive with our lame pony, we entered the thriving town of El Paso de Robles (the Pass of the Oaks), called Paso Robles for short. In all the country passed over, there was no pasturage for bees, and but few were seen upon the flowers; and, so far as we could learn, there were no bee-keepers except in a very small way. The Pass of the Oaks is a

beautiful country dotted with the noble oak-trees. The town is noted for its hot sulphur springs, and is much of a health-resort. We camped under one of the oaks shown in the photo, and here we will rest until our next ramble.

THE FAMILIAR FLAVOR OF HONEY.

WHENCE DOES IT COME?
SHADES OF THE SUGAR-HONEY QUESTION.

By C. W. Dayton.

It has been asserted, that the natural flavor imparted to honey through the manipulation of it by the bees is a musty flavor. Flavor is supposed to be derived from the wax of the comb; also, it is claimed that formic acid is added by the bees. Together with the fact that it is by a particular set of bees that the honey is placed in the cells, goes the other fact that these same workers take special pains to retain said honey in their honey-sacs for a considerable space of time. And it seems reasonable to inquire whether this retention should not render up some sort of account. It was observed that, when a colony stored 10 lbs. of thick sugar syrup per day, it retained the sugar taste; but if allowed to handle only 4 lbs. a day, it tasted like honey. When 4 lbs. of sugar, mixed with 6 lbs. of water, is fed, it may amount to about the same as slow feeding of thick syrup. The cause of the mentioned flavors is theory; but that nectar or syrup is retained in the stomachs of the bees is not theory. Evaporation or extraction of water from syrup or nectar is a matter of water and less water, and not a confusing change. Persons who were opposed to sugar syrup being changed to honey were known to partake of sugar honey at every meal for a week, mistaking it for sage; and one who had produced honey for many years pronounced the same the best *honey* he had ever sampled! For more than one reason it is not advisable to produce sugar honey; but before transforming into a mountain of opposition it is well to find a reason, and then make sure that the reason has a foundation. Even if there is not disclosed any avenue for pecuniary gain, it may not exclude the possibility of other advantage.

It was said of Faraday, that, had he possessed much wealth, it would have been an incubance to him, the care of it thwarting his more cherished plans. As reasonably insist that hens lay stale eggs as that the change in sugar syrup comes from waxen cells, or mustiness from bee manipulation; or, if bees do alter or digest it, there should be a limit to their ability in that direction.

This season I fed 100 lbs. of sugar syrup over and over again until there was very little left, to see of how many sections it would draw out the foundation. It constantly improved, so that the last was the best of all. Some appear to

think there is a high wall on both sides, so that it is impossible to get out of the straight road—only to feed and feed. By a little progression it is discovered that the road would be most beautifully straight were it not for the perplexity of turns.

The bee-business is considerably like that of poultry. Where the feed can all be raised, or where there is saved what would otherwise go to waste, there is profit. But if the feed must be purchased, it affords a margin varying anywhere between profit and loss. If there is profit in sugar honey anywhere, it would be in California. In the East and North the seasons are too short and cold, and bees are more expensive. A colony can not be fed long before causing swarming. If not allowed to swarm, the bees sulk. When they sulk, there is waste; and if they swarm, there is greater waste of both time and feed. Then there is also an increase of travel-stain and irregular building. A little of such reduces a fancy product to second or third grade, and there is no hope for success short of every section perfect in appearance, weight, and quality of contents. With queens from eight months to a year old, they usually swarm before two supers are completed; and with still younger queens, not more than three or four supers. In "feeding back" to secure the completion of combs it amounts to a short "dash" only, as a "wind-up" of the harvest or working season. We choose particular colonies at a particular time; but when feeding is to be continued long, conditions of the bees should be taken into consideration when there is bound to be a waste of time and syrup.

Difficulty that would hardly be expected early in the season, is, in getting the last cells sealed after the combs are filled with honey. Where only ounces of feed is really necessary, it takes pounds to *complete* the work. Then, again, late in the season, instead of storing in the supers it is crowded into the brood-chamber, and much labor by the old bees, with few young ones coming on, will soon depopulate the colonies. Between these times there is intermittent swarming and loafing, and by the most skillful management it will be a matter of luck if the colonies are in disposition to do effective work in sections half of the time. When keeping bees in a cold climate, it seemed that much warm weather would assist and perfect certain manipulation. In trying the warmer climate, there are found other modifications and difficulties undreamed of. For example: In Iowa I thought absconding in spring due to winter-sickness, and other absconding to starvation. In warm climates they appear to leave the hives to break the monotony, being neither sick nor out of food. As they fly out and return, the queen seldom gets back into the hive. Then a worthless queen is reared from a three-days-old larva. The better the queen, the more liable she is to decamp.

When a non-swarming device has been perfected, and several other discomfitures brought within restraint, and an artificial method of charging liquids with formic acid has been discovered, it will be time to talk sugar honey. As the subject now rests, it plays the *role* of a mighty sleeping monster, ready to awake and devour at any moment, the ghostly dread of which is more troublesome to bear than a hand-to-hand encounter with the identical animal.

Florence, Cal.

[On carefully reading the foregoing I do not think that there is any thing in it that advises the feeding of sugar syrup for honey; on the contrary, it suggests a good many difficulties in the way of producing such a product.

I am satisfied that syrup, when fed thin enough, and taken down by the bees slowly enough, and sealed up in combs, has a very distinctive flavor of honey. But it is not floral honey, because it does not come from the flowers; and the fact that some like sugar honey better than other honey may be another way of saying that a good many people prefer sugar syrup, pure and simple, to put on their pancakes, to any honey that was ever produced from flowers. The fact is, sugar syrup is the purest of sweets; is mild in flavor, and with some people it seems to be more easily assimilated. Admitting, then, that sugar syrup, when manipulated by the bees, may acquire a certain honey flavor—which I think can not be successfully disputed—that is no reason why it should be produced.

Mr. Dayton's analogy is a good one; i. e., the poultry business pays when we do not have to buy the feed—or, rather, when they can utilize what would otherwise be wasted. But if we must *purchase* the feed at a country store, it is doubtful whether there is any money in the egg business. So with the honey business.

The sugar syrup itself alone, at the least calculation, would cost from $2\frac{1}{2}$ to 3 cts. But this simply represents sugar and water, half and half. The bees will evaporate it down to a consistency of 11 lbs. per gallon, waste a lot of it in comb-building and brood-rearing, and retain some of it, besides, not in their honey-stomachs, but into the true stomach, to be consumed for their individual use. Taking all of this into consideration, the fussing with feeding, the nuisance from swarming, a lot of unnecessary consumers from brood reared out of season, and the first cost of the sugar honey, the article would cost anywhere from 5 to 10 cts. more than real honey, because, in the case of the last-named, there is no expense for the nectar, no feeding, no robbers, and not necessarily a waste in brood-rearing. This sugar honey (at least, reports seem to say so—and what I have seen seems to bear out the statement), has a water-soaked appearance compared with floral honey. That being the case, it certainly will not bring a higher price than the best gilt-edged floral honey; and assuming that our sugar honey would bring as much, how much profit would there be left after taking off 5 or 10 cts. from the price realized in the open market?

There, now, have I said any thing I ought to have left unsaid? I did not intend at this time to bring up the sugar-honey question; but as nothing has been said on this subject of late, and I find there is in some quarters some speculation as to whether it would pay or not, it may be well to look over the figures a little before we think of embarking into what would certainly be a very questionable and probably a failing enterprise.—Ep.]

NOTES OF BICYCLE TRAVEL.

AT BROWNTOWN, WIS.

By Ernest R. Root.

My wheel-trip westward and northward from the home of Dr. Miller, some 150 miles, was dry and uneventful. It is sufficient to say, the Wisconsin roads and hills were rather more than I bargained for; and when I reached Browntown, Wis., along in the afternoon, I was more tired than I had been at any time on the trip. Just before reaching Browntown, however, I was afraid I might pass a bee-keeper and make it necessary to retrace my path. Down the road a piece was a man in a buggy. "Suppose he should be a bee-keeper," thought I. Although I was tolerably certain that I was on the right road, on reaching him I fired this question—not so much for its answer as to prepare the way for further questions:

"Is this the right road to Browntown?"

"Yes, sir."

"Do you know any bee-keepers by the name of Reed or Lathrop?"

"My name is Reed."

"J. H. Reed?"

"Yes, sir."

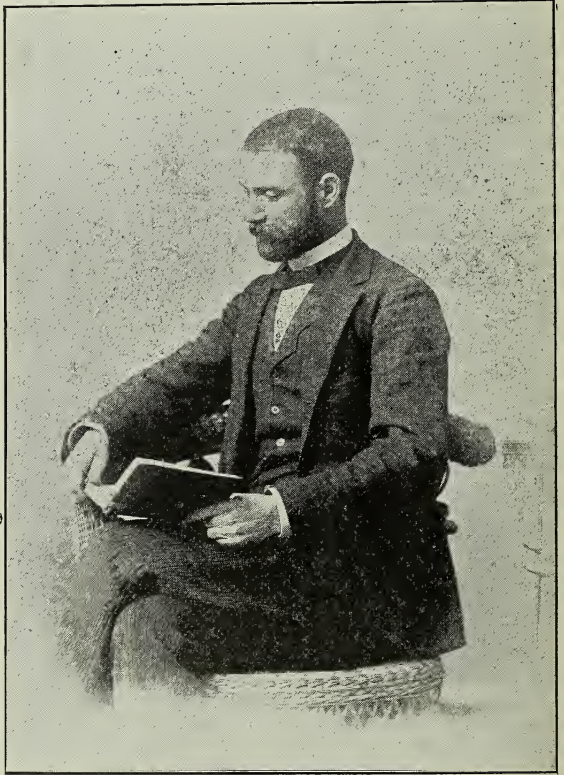
"Well, I was looking for you, and, although I had never seen you, I was afraid I might pass by you," said I. "I should have been sorry not to see you, inasmuch as I have known you for several years by correspondence."

Mr. Reed then remarked that we sometimes have presentiments, and that perhaps this was one. We stopped, and chatted along the roadside for perhaps half an hour, during which time I learned that my friend, besides the misfortune of discovering foul brood in his apiary, and no honey, had met with the loss of an adopted son, who had been kidnapped. Mr. Reed was too full of trouble to talk very much about bees. I tried to console him as best I could, and then went on, leaving him to go back on the road some eight or nine miles over the road over which I had come, to his own home and yard. Just as I pulled out of the woods and rounded the corner, a beautiful valley lay stretched out before me, with a lakelet to one side. This indeed looked like a beautiful bee country, for it was through this section that the great basswood belt of Wisconsin runs.

In a few minutes more I stood before the station at Browntown. I inquired for Mr.

Harry Lathrop, who, I was told, was station-master there. On making known my identity he could hardly believe his eyes, for he had not expected any one from Medina. Of course, as usual I was in a hurry. It being about 3 o'clock, Mr. Lathrop kindly made the most of the time at my disposal, until 6 o'clock that evening.

Before going further, I wish to explain that Mr. Lathrop is one who has written a number of times for GLEANINGS. His apiary, we illustrated in GLEANINGS, page 608, current volume. You will remember that there was there illus-



HARRY LATHROP.

trated a sort of dug-out, or bee-cave, where Mr. Lathrop wintered his bees successfully for a number of years. He is an enthusiastic bee-keeper and wheelman, and, like myself, is interested in Sunday-school work; and somehow my heart knit to his as if he had been an own brother, and that from the brief acquaintance of only a few hours. Well, now let me introduce you to him.

Mr. Lathrop was born in Milwaukee, Wis., March 6, 1856. At an early age he entered the railroad service at Mazomanie, Wis., and later took charge of the station at Prairie du Sac.

Here he made the acquaintance of the veteran bee-keeper Mr. J. J. Ochsner. Some of our older readers will remember Mr. O. as one of those who used to write for GLEANINGS years ago. Latterly we have not seen his name. Having some leisure time, Mr. Lathrop devoted it to the study of such bee-literature as he could obtain, prominent among which were the back numbers of GLEANINGS. After two years' practice with a number of colonies he was very desirous of possessing a working apiary; and providentially, as he says, he was at this time transferred by his employers to Browntown, in the southern part of the State, in the famous basswood belt. Here he bought all the bees in his immediate field, which consisted of a few colonies in various kinds of hives. These were transferred to the Langstroth hive. An occasional purchase of a few soon brought the number up to 150.

His apiary has been devoted mostly to the production of fancy comb honey, and later years, also, to the sale of bees and nuclei. He uses exclusively the eight-frame hive, and considers it large enough. The surplus arrangement is a T super without separators or queen-excluding honey-boards. Although he uses no separators he says he has no trouble in crating his honey, and it always brings him the best prices. At the time of my visit, I was astonished to see that the bees were roaring almost as if on basswood. It will be remembered that, only a few hours before, comparatively, the bees at Dr. Miller's were not only idle, but had done nothing during the whole season. The best part of it all was, although it was so late in the year, such an onslaught of honey at Lathrop's did not make his bees crazy to swarm. They seemed to have sense enough to know that it was too late to think of dividing up, and that it was their business to pile in the honey.

It occurred to me there, how nice it would be if we could only put our basswood honey-flows away back in the latter part of August or early part of September! This would solve the swarming question, and the bees would work right on gathering honey at a rapid rate, without let or hindrance.

Now, then, you ask, "Where did all this fine honey come from?" Mr. Lathrop did not know the technical name, but called it sunflower. I secured some fresh specimens, and had an engraving made, and here is the result.

Other specimens were sent to our State Botanist, who writes as follows:

My Dear Mr. Root:—The honey-plant proves to be another of the great order *Compositæ*, to which the asters, goldenrod, sunflowers, and many others belong. According to Prof. Cook's lists of honey-plants, this order contains a great many which invite the visits of the bees. This particular plant is *Rudbeckia laciniata*—the specific name, *laciniata*, referring to the cut lower leaves. *Rudbeckia laciniata* grows in low grounds along streams in Ohio and

elsewhere, having a wide range. You do not state from what portion of the West the specimen comes, but the limits given in the manuals are "Canada to



WILD SUNFLOWER—THE PLANT THAT YIELDS SO MUCH HONEY IN SOUTHERN WISCONSIN.

Florida, westward from Montana to New Mexico and Arizona." This indicates the presence of the plant in many honey-producing districts.

Wooster, O., Sept. 21.

AUG. D. SELBY.

You see, the botanist seems to tell pretty well where it grows; for indeed the locality around Browntown answers to his description nicely.

Now you will ask about the quality of the honey. Well, it is of the very finest, and would be called by the consumer white honey, though a trifle darker than basswood or clover. Indeed, Mr. Lathrop has been enabled so far, I think, to get as good a price for this sunflower honey as for clover or basswood.

He secured from his apiary last season, all

told, including clover and basswood, and this sunflower honey, something like 6000 lbs. from 85 colonies, and increased 27, besides attending to the duties of depot agent as well.

I might say incidentally, that Mr. Lathrop learned that it was not necessary to work with the bees so much as formerly. Indeed, his duties as a railroad man require him to do as little work with the bees as possible. So in a sense he handles hives instead of frames, and the bees and his splendid location do the rest.

After making the acquaintance of Mr. Lathrop's family, I took the train that evening for Platteville, some 40 miles further west. It was then too late to think of wheeling the rest of the distance, even if I had felt so disposed.

To be Continued.

THE HOME OF THE HONEY-BEES.

GRAPHIC ACCOUNT OF A VISIT THERE.

By Harry Lathrop.

How many bee-keepers scattered over this and other countries there are who would think it a rare privilege to be able to visit the "Home of the Honey-bees," apiary and factory, and see face to face the workers whose names have become so familiar through the reading of GLEANINGS! Well, that is just the privilege I have had, and I want to tell you about it in this article.

When Ernest came west on his bicycle-tour this fall he dropped in on me very suddenly, taking me completely by surprise. Of course, I did not know him, though I had met him once before at his home, twelve years ago. It did not take us long to get acquainted, and then how we did visit during the few short hours he remained with us! Before he left he extended to the writer a very earnest invitation to visit the Home of the Honey-bees at my earliest convenience. Not being in very good health, and needing rest and change, I decided to do so as soon as the honey season was out of the way. Accordingly, the 2d of October found me *en route* for Medina. From Chicago I took a night train on the Erie, which landed me at Sterling, a junction of the Cleveland road, at 8 o'clock A. M., Oct. 3d. This point is about twelve miles south of Medina, and I had intended to ride over on my wheel, which I had brought along; but a sprinkle of rain induced me to choose the less heroic but easier method of travel. I had only about ten minutes to wait for my train, and a short ride through a fine agricultural country, which reminded me very much of my own Southern Wisconsin, brought me to Medina.

As the train approached the village I was on the lookout for a sight of the gardens and grounds of Beeville. Soon my eyes were repaid by a birdseye view. It was a beautiful sight, and more than my imagination had painted it.

The fall rains had freshened every thing up, and there had been no frost. The creek-bottom garden was a model of neatness, with its long rows of growing vegetables and small fruits.

I soon arrived at the factory, and made my way through rooms stored with many articles of interest to a bee-keeper, up to the office, passing through the pressroom. I was on the lookout for the face of my friend Ernest, and I confess I felt the strangeness of my position among so many busy workers. I failed to see the one I was looking for, but was told that he was somewhere about the building. I handed my card to one of the pleasantest-looking men it has been my good fortune to meet, asking him to hand it to Ernest when he saw him. He looked at the card, and extended his hand very cordially, introducing himself as John Calvert. I managed to return his greeting after some fashion, still feeling a bit embarrassed; but soon this feeling passed away, and I started out to wander at will through the great factory, taking in every thing my eyes rested on.

It was not long until I spied Ernest in one of the rooms; and then with him as guide I began a more systematic inspection of the factory. I can't take space to give you a detailed account of every thing; but during the day I made the acquaintance of a number of the workers, including "A. I.," who met me in the evening, and apologized for not having given me more attention. All the time I kept wondering who I was, any way, that I should have such marked kindness and respect shown me.

During this first day I got the run of things, and felt quite at home. It was arranged that, the next morning, I should take a bicycle-ride with Mr. Root, going part way with him toward Akron. That evening a social party of young married people at the home of John Calvert, to which I was invited, along with my kind host and family, added much to a day long to be remembered.

The next morning, at 9:30, Mr. Root and myself mounted our wheels and started toward Akron. This was our opportunity to visit and get better acquainted, as we went swiftly along over good roads and through a beautiful rolling country—a country of orchards, homes, and springs of clear water. We were boys together for 14 miles, and then I turned back, and Mr. Root pushed on to Akron, 6 miles further.

In the afternoon I spent some time in the apiary. I was anxious to inspect the Dovetailed hive and management, with the latest style of Hoffman frame. I was very much pleased with the hive as managed in the Root yard. I believe I could handle a third more bees in those hives, with the same labor that it takes to care for them in hives as ordinarily made. I decided that I would adopt their hive and frame as soon as possible, though I consider the eight-frame Langstroth, which I am now using, a good hive. My frames are self-spacing, and

fixed by means of notched rabbets and spacing-sticks. It takes too much time to loosen and remove frames, as compared with the Dove-tailed hive with its metal rabbets and self-spacing frames. Bee-keeping with such hives and fixtures as are turned out at Root's is not as laborious as it used to be. I am convinced that many are losing time and money by sticking to hives and fixtures of inferior make and workmanship.

In the evening, Ernest and I took our wheels and rode out three or four miles to visit the apiary of Mr. Vernon Burt. Mr. Burt's hives all came from Root's factory. His apiary, like Root's, is a model of neatness, and his bees all fine Italian stock. Mr. Burt informed us that he had taken a fair crop of honey, even in this indifferent season. After an inspection of the apiary, and a chat with the owner, we wheeled back through the gathering shades of night.

The next day was Sunday, and to me the best part of my visit. We all attended the morning church service in a large beautiful church; then a Sunday-school, which seemed to gather in everybody, old and young, who had attended preaching. There seemed to be no lack of workers. The officers and teachers were promptly in their places, and I was not asked to take the place of some absent teacher, as visitors are so often urged to do. At the close, Ernest, who is superintendent, kindly invited me to address the school. It was then I realized that I was from the west, and not accustomed to addressing such large audiences. But I did praise God for what my eyes were permitted to see of "peace on earth and good will to men" among those worshipping people. What a privilege to live where such splendid church work is going on! and how true that every community needs such a work, and could have it if they would work for it as these people have, for God is no respecter of persons. During that beautiful day there was time for quiet walks over the grounds, and rest of both soul and body.

In the evening I accompanied Mr. Root to the jail, where we held a gospel meeting with the prisoners; but, to the credit of Medina Co., I will say that our audience was small, but none the less attentive. The same evening we attended a church prayer-meeting and a temperance meeting, in which all the churches united. Thus closed a day full of blessing and peace.

During the three days of my visit I had become acquainted with every member of the family, including Grandma Root, the aged mother of A. I. Root, and all seemed desirous of making my visit pleasant. Especially should I mention the kind care received in the home of my friends Mr. and Mrs. E. R. Root.

The thing that impressed me very much respecting their business was the marked neatness and order that characterized every thing. There was no waste ground, no weeds, and no

idlers; yet every busy worker had time to be considerate of the comfort of others. On Monday morning, at eight o'clock I mounted my wheel for a ride back to Sterling, leaving behind the beautiful Home of the Honey-bees, a spot on which memory shall ever love to dwell. Brownstown, Wis., Nov. 17.

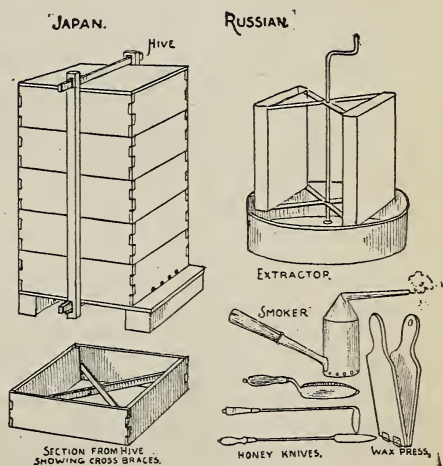
RUSSIAN AND JAPANESE EXHIBIT AT CHICAGO.

HOW THE ORIENTALS DO IT.

By C. A. Hatch.

While at Chicago last year, wandering around with no definite object, in the immense agricultural building, I came across two apicultural exhibits that I have never seen mentioned in the bee-papers; viz., the Russian and Japanese; and while my memory fails to call to mind the details of several interesting things of which a few brief notes were taken at the time, there remains enough, I think, to interest those of your readers who did not happen to discover these exhibits; for, there being nothing to designate them as apiarian displays, it would be a discovery if you found them at all.

Russia had no one in charge of her bee-exhibits. They were simply spread out on a table and had been there with no care, apparently,



all summer. There was some honey in bottles, looking dark and uninviting, and a glass section of fair-looking honey in the comb. The section was about 5x6 inches, I should guess, and made of strips of glass about 2 inches wide, glued at the corners.

The implements consisted of hives, smoker, extractor, wax press and extractor, honey-knives, queen-cage, feeders, and all the usual kit of modern bee-keeping; but, how different! Just look at the smoker! Shades of father Quinby! how long would one of our Yankee bee-men tolerate such a "fixin'" around? Im-

agine a common gallon oil-can cut down to hold about 2 qts., and the top elongated and turned to one side about a foot; a handle put on the opposite side; some holes in the bottom for the draft, and you have it. I think if any one were to attack a cross colony with this kind of weapon he would cry aloud, and roar lustily for an assistant to bring a Bingham or Crane before he would take out many frames.

There were eight different honey-knives shown. One was evidently for uncapping, and much like a Bingham in shape, only smaller, and the others were for transferring from box hives. Presumably, the two shown in the cut were about 18 inches in length.

The wax-press is explained by the picture. The wax being in a cloth, and put between the boards, the two handles were brought together; and, being hinged at the lower end, of course gave pressure.

The extractor looked antiquated, and reminded one of the old Peabody style in use 30 years ago. The combs were put into a kind of long thin box having a double back—the inside one of coarse screen, placed a short space in front of the other; no gearing—simply a bent iron for a crank, and a large flat pan at the bottom to catch the honey as it runs down from the comb-basket. The only way to get this out, that we could discover, was to dip it out. Would it not be a fine dauby job to handle a crop of 30,000 lbs. in this way? If this was a fair exhibit of bee-keeping in Russia, we Americans could show them a few kinks in the business.

One frame hive was shown, something like the old American, having an empty chamber for sections over a brood-nest all in one box, and doors to open to the section department.

JAPAN'S EXHIBIT.

There were only a few things shown with the apicultural exhibit from that country. They consisted of some honey in glass jars, some bees in alcohol, and a hive. How I did want to taste that honey, and have some one tell me how the hive was worked! But the bright-eyed Jap in charge said he knew nothing about bees, so I had to content myself by using my eyes only. The hive, as you can see, is a divisible one, and certainly is one step in advance of a box or cylinder. It was about 15 in. square, and each section about 5 in. deep, clamped together by two uprights, one at each side, and a cross-bar at top and bottom, in long mortises, tightened by a wedge, which does not appear in the cut. Each section was braced diagonally from corner to corner, and the corners dovetailed or locked rather. The wood was something like cedar, and the board about $\frac{3}{4}$ thick. The entrance was through round holes in the bottom section. Now, perhaps Ernest will say, "That is a point for me," for it goes to show that the Japanese bees work up. Well, let him have it if he wants it. The bees were little weazeny

things, any way, and nowhere with Wisconsin bees, that work sidewise best.

Ithaca, Wis., Oct. 25.

TIERING UP.

PUTTING ONE SECTION-SUPER UNDER ANOTHER
AN UNWISE PRACTICE.

By John Handel.

Bee-keepers usually advocate, and I suppose almost all practice, that laborious way of raising the nearly finished case of sections and slipping the empty case under. They seem to take it for granted that, because the bees usually require some coaxing to get them up into the first case, the same will be true with the second. This I began to doubt a few years ago; and while experimenting along this line I came to the conclusion that, whether the new case of sections is placed over or under the case that is three-fourths finished, the bees usually abandon the old case too soon, and commence work in the new. Bees act in this respect like other stock. After a number of pigs have been confined to a yard for a long time, the fence may gradually tumble down; but the pigs, even though they be crowded, seldom try to get out. But, once out, it will take a pretty good fence to hold them. So with the bees. After being confined to the brood-chamber for months they do not notice that the bars are left down, so that, even if considerably crowded for room, it will take time before they venture upstairs. But, once out of the rut, no other inducements than clean sections with starters in them are required to make them go higher. I have coaxed strong colonies into the sixth story by placing the empty case on top of the one three-fourths filled; and after the honey-flow, when I took the honey off, I found almost all of the sections light weight, with the comb seldom built down to the bottom of the section, showing conclusively that too many bees abandoned the old case to begin on the new, leaving a few to finish up as best they could.

Savanna, Ill.

A CHAT ON EUROPEAN MATTERS.—NO. 2.

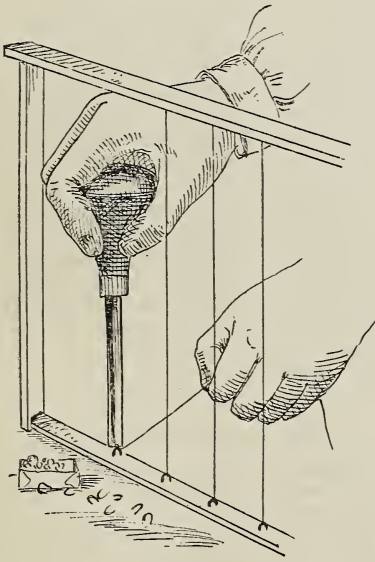
By Charles Norman.

Whether the French and Swiss bee-keepers use what we call the Heddon hive-stand, I do not know. The majority of them, at any rate, seem to prefer having their hives on legs.

A correspondent, in order to prove the preference for the low frame, writes: "At the beginning of the winter the group of bees dwells near the entrance, at the lower part of the frames. On deep frames the warm air ascends to the top, and the bees do not profit by it. On low frames the group is nearer the top of the hive, and in the warmed air; therefore, econ-

omy of both food and fatigue." At first reading, this sounds as if it could not be otherwise. But is it really so? In a square or high hive of the same cubic contents as a low hive, does not the warmed air make up in *depth* for what it loses in *width*? and will not, therefore, the bees have just as much warmed air at their disposal in them, and adapt themselves to it without loss of food and fatigue? The preferableness of the wide frame has, I presume, to be founded on other grounds.

There is mention made of "impropolisable" frames. Since their construction is not given, I am unable to say whether their principle or principles are known to us. There are different "systems," the best of which seems to be Mr. Palice's. It might be advisable to write to him for information. Likewise I see a smoker, *L'Imbouchable*, advertised, which is said to be superior to all others (that is, to those used there). There is also an "automatic" smoker advertised. What it is, I can not say—perhaps something entirely new.



There is a way of wiring frames in use which I have never noticed here. The wiring is done by means of a little implement with which double-pointed tacks are pressed down over the hand-stretched wire into both the top and bottom bars.

There are also foundation-presses in use which are quite plain, and seem to do away with some of the inconveniences of our Given press.

While the Italian bee is the dominating one in our country, a good many of the Swiss and French bee-keepers still stick to the common brown or black bee. Mr. Bertrand is by no means so much opposed to them as our leaders,

and says: "The race of bees of our country is excellent, and one can, if he chooses, still improve it without crossing them with the foreign races at all. It suffices to make a little selection, to increase from the hives which give the best results; i. e., to 'favor' their swarming or to draw artificial swarms from them; further, to remove all queens that produce inferior workers, and to unite the bees with others." I remember that Mr. Doolittle once, in reply to an inquiry in *GLEANINGS*, remarked that, to try improving the common bee, would not be worth while, since the same is a fixed race; while Mr. A. I. Root, in a footnote, differed with him, saying that the thing had not been tried yet, and that, in his opinion, quite a change might be brought about by *selection*.

Concerning the foreign races of bees, the Carniolans seem to have just as many friends as the Italians; likewise the crosses between them and the other races are quite popular. There is even one apicultural genius who thinks that a cross between the common bee and both the Italians and Carniolans is the apex of perfection. By the way, several queen-breeders speak of Carniolan and Carinthian bees. As I do not remember having seen the latter mentioned in our American bee-literature, I first thought the two words might perhaps be synonyms, the Austrian provinces of Carniola and Carinthia adjoining each other; but when looking closer I noticed that, in one of these advertisements, a sharp distinction is made between them; that they had been brought from their respective countries, and that either is offered. Can you, Mr. Editor, or perhaps one of your helpers, tell us what the difference is? A Mr. Bellot, an old, experienced queen-breeder, likewise distinguishes between Syrian and Palestinian bees. Has such a distinction ever been made in this country? He also says: "You know that the oriental queens are much smaller than the Italian queens," as if this were an undoubted fact. Well, the Holy-Land queens are somewhat smaller, no doubt; but are *all* of the oriental queens smaller? The Syrian as well as the Algerian bees (the latter our Punics of camel's-back fame) he calls "great robbers, and very bad if one is not very cautious when opening their hives. They are of great vivacity when the temperature is high." Well, when I think of how Messrs. A. I. and E. R. Root were dealt with one day when they opened their Punic hive, I believe you did not need any Frenchman's testimony to said "vivacity." "In times of scarcity," he continues, "the Palestinian bees are the first to rob when a hive is opened," and gives as a reason for it that "their sense of smell is still more developed" than that of the other races. Regarding the rearing of queens, he says: "The secret is, to work with strong colonies composed of young bees; the hives must contain honey of very good quality, also fresh pollen." Do all American

queen-breeders lay the same stress on using honey, and first-class honey at that? The same writer says: "A very important and not sufficiently observed point is, to have the hives at sufficient distances from each other in order to keep the bees from getting lost when they return. If this is less imperative during the honey-harvest, it is not the same in spring, especially if one has bees of different races. I have often had queens balled, fatigued, and even killed, at the first flight in spring; therefore, for some years I've been keeping my hives at sufficient distances, and thus the bees of contiguous hives do not mix; the queens are more tranquil, and can develop their brood without difficulty."

Another bee-keeper, who uses the Wells hive, closes with perforated zinc the entrance to the other colony, when one of the two colonies has a virgin queen, and her time to be fertilized has come, so that the young queen, when returning, can not go wrong. Well, if, like the majority, one has no double but just single colony hives, would it not, when a virgin is about to make her nuptial trip, be practical to use zinc at the entrances of the adjoining hives (on either side)?

Mr. Chatelain, of St. Marc, Belgium, says that, when a queen issues with a prime swarm, her abdomen hangs down; when a second swarm issues, the abdomen is held horizontally; when a virgin queen goes out on her wedding-trip, the abdomen is held up.

Concerning the question of heredity, a correspondent says: "I am happy to tell you, dear sir, that my long observations have given me results like those of your honorable correspondent, Mr. Chas. Dadant; viz., that the nurse-bees do *not* transfer their characteristics to the young bees or queens which are not of their own blood."

A correspondent who reports a short honey crop found out an old truth, but which can not be repeated often enough: "The weak colonies have done hardly any thing, while the strong ones have amassed a good deal." He had united or strengthened his colonies.

A Mr. Dampoux had 34 straw skeps, 14 of which were small, 20 larger. Fearing the trouble of transferring them in the usual way, he simply set them (after closing, I presume, their entrances and removing or otherwise fixing their bottoms) upon the frames of Dadant hives which he had furnished with foundation. The colonies of the 14 small hives went "downstairs" and took possession of their new quarters; but with the 20 larger ones the thing was a failure.

Another correspondent uses the following mode of transferring: Toward the end of February, or at the beginning of March, "before the bees could fly out much," he places an empty "patent hive" where he wants it to remain. He then sets the box hive inside of

the patent hive, on the bottom of the same. The supposition is, of course, that the box hive is the smaller one; were it too large, it might do to set it on the frames of the patent hive, as in the preceding case, or on top of it. The entrance of the box hive should come as near the entrance of the patent hive as possible. The box hive is set on two pieces of scantling, or the like, so that, if necessary, feeding can be done underneath. The top of the whole is well covered. About the first of May an artificial swarm—as large as possible in order to contain the queen—is taken from the box hive by drumming, and then dumped or driven into the patent hive, which had previously been filled with frames of comb or foundation. The patent hive is covered with a honey-board, on which the box hive is placed, the entrance of which is then closed. Twenty-one days afterward, the honey-board is replaced by a Porter bee-escape, and twenty-four hours thereafter the box hive is taken away and its honey extracted.

I mention these two instances because, in your A B C, you advise placing the patent hive *on top* of the box hive, while the two Swiss or Frenchmen set it *underneath*.

The honey-harvest in 1893 was not satisfactory, on an average, and "reports discouraging" are by far in the majority. A Belgian reports that his whole crop consisted of—honey-dew. It being very thick, the combs had to be softened over boiling water; thus, in a room overheated by fire, and filled with water vapors, our poor "brother," "friend," "colleague," labored for seven long hours to extract—thirty kilograms, and, besides this, he was, though used to manual work, rewarded with having his hands sore and swollen all over.

St. Petersburg, Fla.

To be continued.

MOLASSES-MAKING, AND HOW BEES ARE KILLED.

A MORTAL COMBAT BETWEEN A WASP AND A SPIDER.

By Novice.

Molasses-making has been going on in this vicinity for two weeks, and my bees have suffered in consequence. They fly about the boiling syrup, and as soon as they get over the kettles the heated steam causes them to drop. My colonies have lost fifty per cent of their strength in this way.

The plague of yellow-jackets has been unusually bad this fall. My idea has always been, that a bee is insensible to fear. This is a mistake. They certainly do fear the nimble yellow-jacket, and in many cases I have seen the bees give way before him, and allow him full license to plunder. This is not always the case, how-

ever, as they will generally have a battle royal with the intruder, and by force of numbers kill him at last.

Speaking of contests of this sort reminds me of a most interesting scene, witnessed some years ago, that would have delighted the very soul of the entomologist. It was a warm day in summer; and when sitting on the gallery I heard something drop in the sandy yard, that attracted attention. A large wasp of a rare species had found in the branches of an oak, an immense spider, with a body as large as the end of your middle finger, and with legs of a spread of three inches. They fell to the ground, locked in a deadly embrace. The fall seemed to disconcert the wasp, and it relinquished its hold and flew away. The spider rested a few moments, looking all around for its adversary, and then began to crawl away. Presently the wasp returned to the spot where he had left the spider, and, missing him, alighted on the ground, and with quick nervous movements began to track up the spider, just as a dog would trail a deer. The spider had reached the shelter of some thin grass, and was waiting the advance of its enemy. As soon as it saw the wasp it threw itself into an attitude of defense, resting on its posterior limbs, and lifting the two pair of front legs high into the air. The wasp darted at him, and the two rolled on the ground in a furious struggle, the wasp trying to use its sting and the spider its deadly bite. The contest lasted for a full minute, the two rolling over and over in the dust until the wasp, apparently getting the worst of it, tore loose from the spider and flew away. The look of sullen ferocity worn by the spider as its winged foe retreated was something to be remembered. It appeared as though the wasp, although not actually bitten, was intimidated, and had abandoned the field. In a few minutes, however, the wasp returned, apparently with the determination to have that spider or die. It tracked it up again, and the same furious combat was repeated. The insects writhed, and rolled over and over, their motions being so rapid that the eye could not follow. At last the deadly sting was delivered, and the spider instantly paralyzed. Then followed a singular scene. The wasp, after resting a few minutes, lifted the spider and bore it away. Flight with such a burden was impossible. Although the weight of the spider must have been double its own, the wasp carried it out of the fringe of grass, and, selecting an open route, carried it into the path which led to the yard gate. Being interested to know what the wasp was going to do with its prize I followed and watched it pass under the gate, and out until it reached the foot of a large red oak standing at least twenty yards from the scene of the battle. Reaching the tree, without hesitation it began to mount it with its load, and climbed, without rest or pause, until it disappeared within the

recesses of a large hollow in the oak, and I saw it no more.

I suppose Prof. Cook would tell us that the sting of the wasp, while it did not kill the spider, put it into a comatose state, unable to move a limb, but still having life, until the egg of the wasp, inserted under its skin, developed into a grub which lived and grew, feeding on the body of the still living and helpless victim until it reached its maturity. I wonder if the fable of Prometheus bound to the rock, with the vulture feeding on his vitals, may not have been suggested by such a scene as this.

EIGHT OR TEN FRAME HIVES.

HOW AND WHY THE LATTER IS BETTER IN A POOR SEASON AND IN LOCALITIES OF IRREGULAR HONEY-FLOWS.

By J. J. Cosby.

I see that the size of hives is being discussed yet to a certain extent. My conclusion is, that this is an extreme point, and can be proven only under extreme circumstances. I have always believed that the size of hive to the average queen is of vital importance. Now, what size shall we adopt to accommodate the average queen, in an extreme case? I am using the ten-frame Dovetailed hive; and during last winter and the summer of 1893 the journals had so much to say in favor of eight-frame hives that I almost regretted I did not adopt them. The ten-frame hives cost more, are heavier to handle, have more pieces to handle, and occupy more space when being transported. Then if an eight-frame hive is just as good, or better, under all circumstances, why not adopt it as my standard, if I can get the same number of pounds of honey from it that I can from a larger hive?

After reasoning as above I determined to try a part of my colonies on eight frames for 1894. About the first of May, when all had been equalized as to brood, bees, and stores, I put dummies at the sides of ten hives—or, in other words, contracted them to eight-frame hives. I work on the Doolittle contracted expansion plan in the early spring, and at my last round I see that all have about the same amount of stores.

All the surroundings at this time seemed to be favorable for a good crop of honey, except the weather. March was noted for unusually cold blizzards; April for its unusually cold rains, and with all this the bees increased in numbers rapidly. May came; but in her hurry to dress she neglected to adorn herself with any fruit-bloom or any other flowers except a little dandelion. Then came June a smiling, and in many places hid God's green earth with her white carpet of extravagance (white clover), but neglected to put in the needful nectar.

Then our cup of anticipation was full of disappointment, and also the bees were disappointed, for many colonies were killing their drones before June.

The 15th of June came, and no honey; and up to this date my eight-frame hives, from all appearances, both outside and inside, were just as good as the ten-frame. By July the first outside appearances showed no change; but examination showed that the queens on the eight frames had curtailed laying to a certain extent, while in the ten-frame hives the queens were keeping their combs full of eggs and brood. July 18th many of the queens on the eight frames had almost ceased laying. Combs were empty, supplies exhausted; several of them did not contain half a teacupful of honey to the colony. It is no wonder the queens quit laying—stores used up right in the midst of a long drouth, and nothing coming in except a little pollen to keep them from actual starvation.

About this time I fancy I hear some veteran whisper in thundering tones, "Why don't you feed them?" To that one I reply, I'm testing eight or ten frame hives. August 1st came, and it began to look as though I should have to feed all. Yet the ten-frame colonies had an abundance of eggs, brood in all stages, and a host of workers and some considerable old honey in the outside frames. These two outside frames constituted the capital that kept the queens laying all through July. About Aug. 10 they began to get some honey, and by Sept. 1 the honey-flow was good, and lasted up to about the 8th or 10th of October, when frost killed the flowers.

My ten-frame colonies went into the supers, and did good work at the commencement of the flow, and continued there as long as it lasted. The eight-frame colonies did not have a sufficient number of workers to go to the supers at the start, and four of them never got there at all, but got in good shape for winter—plenty of bees and abundant stores. The other six gave me a surplus of 90 lbs. of section honey. I worked 24 colonies on ten frames; had one swarm only. It came out June 1. I hived it on five full sheets of foundation, and fed a little through June and July, and got from it 128 lbs. of section honey. My entire crop is a little over 2300 lbs.; a little over 300 lbs. extracted, and the rest section honey.

Now, had the honey-flow come at the usual season of the year, which is June, then the eight-frame colonies were in good shape to take care of it, and no doubt I should have adopted this hive for my standard. This test has proved conclusively to me that it is too small to go through an exceedingly dry year or a long siege of forage, and then be in shape to take care of a sudden honey-flow. It may do in localities and off-years where the honey-flow is regular at certain periods of the year; but where it varies, give me the ten-frame hive. If the ten

frames are well filled, this supply will last until late in the summer; then if compelled to feed for the coming winter, do so in time to raise a good supply of bees to go into winter quarters.

This year has been one of extremes, and I am glad I made the test at this time. The test was made with queens of equal ability (so far as I could judge), and in the same yard. If I had adopted the eight-frame hive two or three years ago, or had I put dummies in my hives at the time I contracted the ten colonies, my crop would have been almost a failure. It would have been just the kind of crop that hundreds of our bee-keeping friends are reporting. I truly believe that many who have reported a failure or short crop could have had at least a fair average crop, and many would have had a good crop if they had used a larger hive and had not robbed the brood-chamber during the previous year. Nearly every one reports his hives full for winter. Yes, and so are mine—even the four that failed to give me a single pound of surplus. It may be nice to theorize at times; but, under extreme circumstances, practice may prove that dollars and cents get to be a premium.

Evansville, Ind., Nov. 26.

EIGHT-FRAME HIVE NOT EQUAL TO THE LARGE QUINBY.

TWO-STORY EIGHT-FRAMES DON'T FILL THE BILL.

By W. A. Chrysler.

I have read with great interest the discussion of eight vs. ten frames; and from my own practical experience I think the ten-frame idea will gain the day. I, however, think as Ernest does—that twelve frames would be the most desirable size for the brood-nest; but that makes the top of the hive too large. I have, for the last five or six years, been trying to think the eight-frame hive the best. I have for years been trying to make that two-story system of management work for storing frames of brood and getting a great big colony for the honey-flow; but I find my large single-story hives (about nine-frame Quinby capacity) ahead. They seem to store enough honey in fruit-bloom to tide them over to clover when the eight or sixteen frame hive has to be fed, or is in a shape to absorb probably a fair crop *among all the brood*, when we can not well or advisably extract it. I find the queen does not lay as well when an extra story is added for brood. The heat goes upstairs, and so does the queen. I can not keep her laying in both stories unless in very warm weather, and then I want her to let up some. I think the eight-frame hive is better with eight frames than one with eight frames added above, L. size. I think the Heddon hive would be more successful. The Langstroth eight-frame has become so much of a

standard hive that I am very sorry to change to any thing else: but I have decided to "flop," and not only from the eight to the ten frame Langstroth, but right over to the ten-frame Quinby, with the frames shortened to that of the Langstroth.

As this discussion in GLEANINGS will encourage new styles of hives of so many different sizes, I think the manufacturers should all, if possible, invent a new hive in keeping with the times and demands that are being made by bee-keepers. My customers are now ordering larger hives than last year, many of them new styles.

Chatham, Ont., Nov. 21.



BUILDING A HONEY-HOUSE.

Question.—I am thinking of building me a honey-house; and as I wish to get ready this winter I wish you would tell me just how you would build such a house for the storing of comb honey.

Answer.—My experience tells me that I should want such a honey-house only in connection with a shop or general workroom. for a honey-house away from the general workroom causes very many needless steps and worry not caused by the two being combined. Any building can be cheaply lined so as to exclude bees, with half-inch stuff, for the general workroom, and the storage room be built on the south side so as to make it convenient, airy, strong, and sufficiently warm to ripen honey thoroughly. If I were building a shop I would build it so that I could partition off this storage-room on the southwest corner, having the body of the shop for doing work of all kinds pertaining to the apiary. I would build it two stories high, and use the upper story for storing every thing not in use, or liable to be used for some little time. If I did not wish to build a shop, I would use any old building I had, lining and fixing it as in the case first given for a room for this general work, for such a room can not well be dispensed with. It would be *preferable* to have this general room mouse and rat proof; but if an old building is used it could hardly be expected, without quite an outlay. The room used for storing honey I would have mouse-proof, let it cost what it would; for the filth from vermin about honey is not to be tolerated at all. If mice get into the general room, keep them caught out with traps; and as for the rats, they will not be liable to bother unless you have grain of some kind in your room for them to feed upon, and this, of course, you will not tolerate, for this general room is for bee-fixtures and not for grain.

Having given a little outline of what I would have for the general workroom, I will next tell about a room for storing honey. This need not be larger than 8x10 for storing all the comb honey from 100 colonies in the spring, even should they produce 200 lbs. per colony on an average. Whether built in with the shop, or at the outside of another building, I would have a wall of mason-work for the sills to rest upon, if drainage could be obtained so the water would not stand under the wall, as in such case the freezing of the water about the wall would soon destroy it. If I could not dispose of the water I would use abutments. The wall or abutments need not be more than a foot high; and if a wall, two or four six-inch-square holes should be left at the sides so that air can circulate freely under the floor. If a wall is used, 6x8 would be plenty large for the sills, and 8x10 in any case; for you will see that the abutments, if such are used, are close together, not more than three or four feet apart. For sleepers I would use 2x8 inch, and place them about eight inches apart from center to center, having them run the shortest way of the room. Now, do not think this is too strong, and place these sleepers further apart; for if you do you will repent should you ever get from five to ten tons of honey in your room.

I would have the room nine feet high in the clear. If built separate from the shop I would have a tin roof, and paint it a dark color; but if in a shop, of course no roof will be needed save that over the whole building, as the upper floor will make the roof. So far I would use good hemlock for the wood employed, for this holds a nail well, is strong, and does not easily decay. For the floor, I would use 1¼ matched spruce four inches wide, and inch pine common ceiling for the sides. If all is put together as it should be, you will not be bothered with mice, provided you keep the door to this room shut when not in use. This door is to be on the side next your general room, of course. I would have a window on one side and on one end, which are to be opened in warm dry weather, so as to ventilate thoroughly the room and pile of honey. Over these windows on the outside is to be placed wire cloth so the windows can be left open at pleasure, without any fears of robber-bees. To let the bees out, which may chance to come in on the honey or in any other way, let this wire cloth run 8 or 10 inches above the top of the window, nailing on strips of lath, or other strips ¾ thick, so as to keep the wire cloth out that far from the sides of the building, thus giving space for the bees to crawl up on the cloth to the top when they are on the outside. No robber-bee will ever think of trying to get in at this entrance, so your room is kept clear of bees, flies, and other insects all the while.

This completes the building, I believe, except that we want it painted some dark color

so that the rays of the sun may keep it as warm as possible. The door should be in the center of one side, so that on each side of the room a platform can be built upon which to place the honey. Perhaps all will not agree with me; but I think that all comb honey should be stored in such a room at least a month before crating, to ripen and sweat out. I know it is a saving of labor and time to crate it as fast as taken off the hive, but I think it pays for all the extra time and labor, in the better quality and appearance of our product. The platform should not be less than six inches higher than the floor, and so fixed that air can circulate under it freely. Then whatever style of super you may use, arrangement is to be made so that each super is separated from its neighbor an inch or so at bottom, top, and all around, so that the air can circulate all through and all about the honey, thus curing and ripening it thoroughly. Also, fixed in this way the fumes of burning sulphur can penetrate the whole pile should it be necessary to sulphur it on account of the larvæ of the wax-moth being liable to injure it.

Before closing I must tell you how to fix a closet for all combs in frames, not in use. As you are building, place the studding on one side just as far apart as the top-bar of your frame is long. Now nail strips of $\frac{3}{8}$ stuff, $2\frac{1}{2}$ feet long by 5 inches wide to these studding, letting them stand out into the room in a horizontal position. Let the distance between each strip from top to top be two inches greater than the depth of your frame, so as to give sufficient room to manipulate the frames handily. Three inches from the ends of these strips run a partition clear across the room, which is to have close-fitting narrow doors placed in it, spaced so as to be most convenient. Now hang in your combs whenever you have any not occupied by the bees from any reason, and see that all combs not in use are in their place, and not lying about somewhere else. As often as any signs of worms are found, put in a pot of burning sulphur, close the doors, and the work is done.



THE GRAIN OF FOUNDATION.

I want to offer a suggestion in regard to foundation-making. On page 557, 1890, you advise hanging the foundation in the sections crosswise of the sheet as it leaves the mill. I do not know how it would test in the hive, but I have been trying the same test you did—welding together pieces of equal dimensions, to test the strength both ways at one pull, and I find that the greater strength is the long way

of the sheet. A bar of iron is by far the stronger the long way, because of the rolling process lengthening the grain. Why may there not be some of the same in wax? If you think worth while, won't you look into the matter?

Loveland, Colo.

R. C. AIKIN.

[There is something in what you say. I had not thought of it in that way before.—ED.]

HONEY AS FOOD AND MEDICINE; A GOOD TESTIMONIAL FROM AN OUTSIDE SOURCE.

In a journal published by a certain health club I find the following splendid testimony in favor of honey as food:

"Honey is concentrated nerve food in its very sweetest form: and if people would use honey on their bread, instead of butter, they would have more vitality, better complexions, and a more even disposition. The ancient patriarchs regarded honey as the cream of food; and so it is if eaten lightly. Honey-eaters are the kindest, best-dispositioned, and most benevolent of people."

On another page of the same journal I find the following reference to glucose:

"Glucose, a perverted form of corn, is prevalent in beer and in other drinks, and especially in soft caramels and creams, and in syrups, jellies, and similar things. Although derived from nutritious food, it is in a perverted shape; and to glucose may be attributed the rapid spread of Bright's disease."

It is my firm conviction, that, if people knew the truth as to the real nature of glucose, they would purchase less cheap syrup and more pure honey. It should be the constant aim of beekeepers to educate the people on this point; and when we seek to advance our product we are only advocating something that will add to the comfort and health of those who use it, and we can do so with a clear conscience.

HARRY LATHROP.

Browntown, Wis., Nov. 7.

ALSIKE CLOVER, ETC.

About two years ago I wrote an article for GLEANINGS on the subject of alsike clover, printed in the February issue, I think. Our neighbor, Mr. McColl, mentioned in the article, has just finished cleaning the seed raised upon twenty acres of specially prepared land. Though the land was not in what Mr. McColl considers *perfect* condition, the result was an average of seven bushels of perfectly clean plump seed to the acre, besides a considerable amount of good seed in the screenings. Mr. M. is very particular as to the quality of his clover seed. This crop was all *profit*, for the by-products have paid the cost of production. My object in sending you this item is to emphasize the point upon which you have always laid so much stress; namely, that nothing pays better than thorough, intelligent preparation of the ground in growing any kind of crop; also, that

when a crop can be grown in a single season, that will bring in the market a sum equal to the value of the land on which it was grown, our farmer friends have not so much to grumble about after all.

If your readers care to know what Mr. McColl considers perfect condition of soil for alsike, and his method of attaining it, I shall be pleased to furnish a concise statement for GLEANINGS. EMILY J. WEST.

Flint, Mich., Nov. 2.

[By all means give us the particulars, friend Emily.—ED.]

LATE-MATED QUEENS.

I was much interested in G. B. Replogle's letter to Dr. Miller (page 9) concerning late-mated queens. My experience along this line convinces me that there is something in the theory. The last four years I have requeened my apiary very late in the fall, so as to get my queens mated to select drones. I found these queens very prolific. Several that are now three years old show no signs of failing. These colonies have been the first ones in condition to build cells early in the spring. As they built such nice cells, I have kept them longer than I do most queens, unless it is fine breeding-stock. While these colonies got very strong, they were not any more inclined to swarm than those having fewer bees in them.

I have forty colonies in winter quarters now, with late-mated queens. Bees were reared in but three colonies before cold weather set in, so I shall have a good number to test the coming season. Before, the queens were used to fill orders; so, but a few were kept through the season. Since my attention was called to this matter, I don't remember of having a poor queen among any of my late-mated ones. Twenty colonies have been the smallest number in my yard the last four years. Nearly all bee-keepers could requeen their apiary late, even if there were black bees all around them, and get nearly all queens purely mated. If bee-keepers desire, I will give my method of getting late drones—something that would interest queen-breeders also. E. F. QUIGLEY.

Unionville, Mo.

[This letter was mislaid. It has just turned up; and as it is good, I am glad to give it place at this late date.—ED.]

HOW TO KEEP ANTS, WHERE THEY ARE A NUISANCE, OUT OF THE HIVE.

I have succeeded in insulating a hive from ants, without inconveniencing the bees. I will give the plan. Make a stand somewhat like the Heddon stand, with outside dimensions the same as those of the bottom-board, and the top edges even. We would say, dovetail them at the corners, and only three inches deep. Into each top corner insert a wood screw for the bottom-board to rest on. The screws may be

placed in the stand so as to make them come under the cleats, or a little back from them, just as you like best. Now adjust the screws so as to make a crack $\frac{1}{4}$ of an inch between the cleats and the ends of the stand. Now place the hive on the stand, and watch the bees (after they learn the trick) walk over the crack and enter the hive. Watch the ants, also, how they caper about and are not able to play the trick. Do not allow grass or any thing to form a connection between the ground and the hive. You will readily notice the stand may be made on different plans, and the space over which the bees are required to step may be varied to suit your needs.

Lilesville, N. C.

W. E. T. INGRAM.

BEE-SMOKER TO GET RID OF GOPHERS, ETC.

In many of the Western States the small ground-squirrels—Franklin's spermophile—locally known as the gray gopher, a gray ground-squirrel, etc., and the striped spermophile, local name striped gopher, striped ground-squirrel, etc., are very numerous, and do much damage in the newly planted corn-fields, the first named in particular often depleting the fields to such an extent as to cause the replanting of the same. They increase very fast; and in sections where, a few years ago, they were scarce, their name is now legion. They are strictly a prairie-squirrel, and are never found in the timber, though they quickly take possession of the timber lands after they are cleared. Shooting and trapping are slow and unsatisfactory methods of destroying them; and while poison is more sure, many people object to its use on account of danger to domestic animals. My way is, to take a good smoker, charge it with the fuel in common use, mixed with rags dipped in melted sulphur (I suppose sulphur sprinkled on the fuel would answer the same purpose), light, insert the nozzle in the mouth of the burrow, and a few blasts will fill the hole with sulphuric-acid gas, which is certain death to the animal. Sulphuric-acid gas is heavier than air, and will settle to the bottom of the hole.

This plan will work on any burrowing animal, providing the holes are all closed to prevent the escape of the animal. In using the smoker in small holes, the taper nozzle will usually fill the hole; but for skunk, groundhog, fox, or other larger animals, it will be advisable to close the mouth of the burrow by laying a board over it with a hole in the center, to admit the nozzle of the smoker. This is fun for the boys, but death to the varmints.

Monroe, Ia.

J. A. NASH.

PUMICE STONE FOR PROPOLIS.

Did you ever try pumice stone as a cleaner for propolis-stained hands? Nothing else is required except a little water—the handiest thing I ever tried. H. DUPRET.

Montreal, Can., Oct. 14.



DON'T fail to read the article by E. France in this number. It's long, but it is good in proportion to its length.

WE clip the following little gem from the *Bicycling World*: A. I. R.

Advertise honestly. It takes five minutes to disappoint a customer; five years to reassure him.

THE following note was just received from Mr. F. A. Salisbury:

Ernest:—I see by the last issue of GLEANINGS you made me say that I secured a big crop of honey while some of my neighbors secured little or none. If I said that, it was a slip of the tongue. I do not think any more honey can be got by keeping bees in a house-apiry than outdoors. It can be harvested with considerably less labor.

Syracuse, N. Y. F. A. SALISBURY.

I should more think it was a slip of the ear than of the tongue, therefore I father the mistake myself.

COMPLAINT has been made that we have offered special inducements to *new* subscribers, but none to those who stood by us year by year. As there was a shade of truth in this, last year we offered the *Farm Journal* and GLEANINGS to old subscribers for the regular price of GLEANINGS alone, providing they would renew before January before the time paid for was out. This offer is again made, but expires by Jan. 1. Don't forget that, if your time is not up yet, you can still get the *Farm Journal* free by sending in the dollar in advance for another year. As it will be during this month that a large number of subscriptions expire, we hope our friends will take advantage of the situation *at once*. Suitable blanks will be sent to all whose time is up. Notice also, in another column, the low clubbing offer for A B C; viz., GLEANINGS and the A B C in paper postpaid for \$1.55.

QUEEN-BREEDERS AND BEE-PARALYSIS.

In our issue for Nov. 15, page 872, I asked for a show of hands of all queen-breeders who sell queens, who would agree to destroy the first case of bee-paralysis within twenty-four hours after its discovery. Some have responded, but not all. In many, and in most cases, it is true, we are able to cure paralysis, and, perhaps, the queen-breeder thinks it would be too bad to destroy a good colony, and possibly a valuable queen, so long as there is a probability of cure. But knowing, as we do, that the disease can be carried by queens all over the country, and while impotent in one place works fearful havoc in another, it seems to me that every queen-breeder should be willing to take radical measures, not for his own sake but for

others'. Such a course would surely stamp it out entirely in a few years. The reason why the disease has been getting a foothold was because we did not recognize its danger. The following have so far held up their hand:

W. H. Laws, Lavaca, Ark.
J. P. Moore, Morgan, Ky.
J. J. Hardy, Lavonia, Ga.
F. A. Lockhart, Lake George, N. Y.
F. B. Yockey, North Washington, Pa.
H. G. Quirin, Bellevue, Ohio.

As bearing on the eight-frame hive discussion, the following editorial in the *Progressive Bee-keeper* will give a little comfort to the ten-framers, and we are glad to place it before our readers for what it is worth:

Which is the more profitable hive to use—eight or ten-frame? Mrs. J. M. Null, when at St. Joseph, said she had some ten-frame hives in her apiary, and she always found they had plenty of honey to winter them. Our own experience has been the same. When we changed from American to Langstroth frames, we made ten-frame hives. Later, we sold the ten-frame hives to our neighbors, and adopted eight-frame hives. These hives of our neighbors had had no attention but putting on surplus cases. They turned off more bees to a swarm, and when fall came we were called on to take off the honey. We always find a good lot of honey in these hives whenever there is any honey gathered by other bees around them. Our observation of the above was for four years in succession, and we have to admit that our own colonies in eight-frame hives, with good management, did not give us as large an amount of surplus honey.

LARGE AND SMALL HIVES, AGAIN.

It is a little confusing to read over the diametrically opposing experiences of some of those who have written on this question. But, one thing *seems* to be coming out; and that is, that bee-keepers have been, for the most part, trying to get along with too small brood-nests. And it is possible that this may partly account for the poor honey crops of late. While some think a ten-frame hive is the thing, and large enough, from the evidence that has been received, and from my own experience, I am coming more and more to believe that, while ten-frames may give slightly better results, a twelve or sixteen frame brood-nest would give still better results. I may be wrong; but in my own mind I have decided that, inasmuch as the eight-frame size body full of combs is not too large to lift, two stories of this hive will give a brood-nest ample for all purposes and for all seasons. Then in poor seasons, and with poor queens or with poor localities, one of the eight-frame bodies may be quite large enough. Hence I have and still favor the eight-frame size for hive bodies. A couple of valuable articles will be found in this number on the subject.

In this connection I may remark that Observer, in *Progressive Bee-keeper*, wants to know whether I am paving the way for a new hive for poor benighted bee-keepers since I am

beginning to favor larger colonies. No such idea ever entered my head at all. Besides, it would be terribly expensive, not only to bee-keepers, but to us as supply-dealers, to change our patterns, our engravings, and, in fact, our whole catalog and machinery, all of which is especially adapted to the hives and fixtures such as we have recommended and still recommend. I have tried to be honest with our readers, and tried to get at the facts, no matter whether they favored my views or not, or our convenience as manufacturers; and I mean to carry out this course, even if it necessitates turning our whole establishment upside down. Incidentally it may be remarked that the supply-dealers should not only keep up with the times, but be a little in advance of them, and at the same time observe that conservative spirit that will prevent rushing into new and useless things.

THE DIFFERENT MAKES OF FOUNDATION AS TESTED AT THE MICHIGAN APICULTURAL EXPERIMENT STATION.

In the *Bee-keepers' Review* for November, Mr. R. L. Taylor gives a further detailed account of his experiments with different makes of foundation. Mr. Taylor concerns himself this time in the study of the "comparative value of different samples of foundation," and the "thinness to which bees work the septum in drawing it into comb." He refers to "the very earnest and commendable efforts" made at the Root establishment, in the direction of improving *machinery* for making foundation.

The experiment it question was conducted to verify or disprove a similar experiment of last year; viz., what grades of foundation give the thinnest septa, or bases, in the drawn-out comb; or, in other words, show the least perceptible amount of "fishbone" in eating the comb honey made from the foundation. As before, samples were obtained from the various manufacturers, and these were put into hives, drawn out, and filled with honey. A section of comb made from each of the samples to be tested was selected, extracted, and thoroughly washed and dried, after which it was trimmed to a given thickness—about half an inch. These pieces were submitted to the weighing test at the laboratory of Dr. Kedzie, of the Agricultural College. They were then measured by Dr. Beal, of the same institution, to determine the thinness of the septa. Other samples were sent to our establishment to be measured by our micrometer—the one we use in our own work. The samples were all lettered, so it would be impossible for bias or self-interest to creep in. The results are all carefully tabulated—both the weights and measurements—and it is remarkable how nearly the two harmonize. Our own measurements and those of Dr. Beal were averaged so as to get greater accuracy. Well, now, the figures show that the

Dadant foundation, when drawn out into comb, had the thinnest septa; namely, $\frac{1}{100000}$. Next in order was a sample of the Root. While the Dadant registers the smallest fraction, so far as the *thinness of the base* is concerned, our own, on the scales, showed the *least weight*. Next in order came the Dadant and the Given.

Mr. Taylor then furnishes another table showing the measurements of the various makes of foundation for 1893 with those for this year; and the comparison shows a decided improvement with one exception, all of which is very encouraging.

In concluding, I can not do better than to quote the summary in Mr. Taylor's own language, which is as follows:

1. In all cases except the Van Deusen there seems to have been an improvement in the foundation over that used in 1893; and in the case of the Van Deusen it is to be noted that the bees accepted only the septum, which was shown by their removing the cell-walls, and building, instead, more or less regular drone-cells.

2. Most remarkable is the improvement in the foundation made by Root and by the Dadants in so far as the lightness of the septa is concerned. By a comparison with the measurements of the septa of the unworked foundation as shown in the table it will be seen that the foundation has been so skillfully made that the bees have either pared down the septa or else manipulated the entire wax of the septa, using for them only what was necessary, so that the resulting comb does not suffer at all, so far as thinness is concerned, in comparison with the natural comb.

3. The same thinning process is very apparent in the drawing-out of the Hunt foundation.

4. In the case of the Van Deusen, and generally in a greater or less degree in the case of that made on the Given press, the process has been changed to a thickening one.

5. In point of thinness of base of the comb produced, the foundations stand in the following order: The Dadant first; then in their order the Root, the Given, the Hunt, and the Van Deusen.

6. The comparison by weighing places them in substantially the same order. Where there is variance it is reasonably accounted for by the difference in the size of the cells. Thus the Van Deusen, had it carried the amount of cell-walls that would have been necessary for worker comb, would evidently have been of considerably greater weight.

It would, of course, be of great interest to know the methods and the peculiarities of the wax used in making the foundation which seems to disclose such a decided advance over what has been made heretofore. It is to be hoped that the improvement has been made wittingly, so that a knowledge of it may be perpetuated if not disseminated. In order to determine what the utmost existing skill and knowledge could produce, the several manufacturers were acquainted with the use to which the foundation was to be put when it was ordered; and the question arises, whether all the foundation made was of equal quality. To determine this it is apparent that future experiments should be made with foundation so procured that it can not have been made with the express purpose of having it used for experimentation.



All along the route, as I neared Lebanon I heard of the wonderful spring on the river Niangua. In fact, the river itself, so I am told, is the product of one or more soft-water springs. I was told, also, that dry weather has no effect on it; and one is obliged to ford the river to get to Lebanon, not only once but three times. I suggested that I could take my wheel and go around the spring and get rid of fording the rivers; but they told me it came out of the side of a cliff, and that there was no other way but to go down through the deep water. They said I would probably have to hire somebody to take a wagon to carry me over, for the water came almost if not quite up to the wagon-body. I knew I should not have time for such delays but I pushed ahead. I made pretty good progress until I came into the neighborhood of the river; then I had it up and down, up and down. But it was not hills where one could go down on one side and up another, as we do away back home in Ohio. The hills were not only long and steep, but rocks were so thick, from the size of a hen's egg up to a good-sized pumpkin, that at first glance it seemed little short of madness to go down such hills on a wheel; but, like the sand I told you about long ago, I soon learned that a wheelman can learn to dodge and climb over rocks. In fact, before I got to the springs I learned to go down these hills at almost a breakneck speed. It was not so much the rubber tires that had to be managed—it was the cranks and pedals. If a pedal strikes a rock, or stump of a tree that has not been cut off quite short enough, it gives a shock ten times worse than striking the rubber tire against an obstruction. In going down one of the last hills I met a couple of pedestrians. They said they *waded* the river. I decided that, if they did, I could do it, even though they were considerably taller than myself. At the bottom of a longer and steeper incline than any I had met before, the beautiful Niangua River burst on my view. All that I have said in regard to the crystal purity of the waters at Castalia, O., will apply to this broad river. The gravely bed, however, was composed of sharp flinty pebbles; and as soon as my bare foot touched them I decided that going barefoot was out of the question; therefore my light kid wheeling-shoes had to take their water-bath. I was perspiring in every pore. In fact, the sweat was dripping from the end of my nose. It was a difficult matter to roll up my pants and heavy underclothing; and when I had tugged and pulled to get them a notch higher I was only a little way out in the stream. The water was deliciously cool to my palate, and I drank again and again while it was rushing past me above my knees. At first it gave a chill to my lower extremities; but pretty soon I began to enjoy it, and really longed to plunge into the crystal flood all over. I think I should have done so if time had permitted. I took a glance at the sun. It was sinking relentlessly, and I had nearly 20 miles more to make before dark, besides getting through that river three times. I went back hastily, divested myself of my pants and thick heavy underwear. The latter article was put on when I started, thinking we should have frosty nights. I finally got them off, and then made another attempt at wading. Before I got through I had to hold up not only my coat-tails, but the lower ends of another garment that

would have been white had it not been for the fact that it was Saturday night, and that I had been wheel-riding for almost a solid week. I put my clothing on the bank, then waded back for my wheel, scooping up the delicious cooling liquid every now and then on the way. The current was so swift that I made rather slow progress. Just as I reached the opposite bank I was dismayed by seeing a young lady on horseback rounding the cliff on the opposite side. As a rule, I am always glad to meet young ladies on horseback, but I didn't enjoy meeting this particular *one*; for my pantaloons, etc., were on the *other side of the river*, and there was not time enough for me to get down into the deep water without a very undignified splash and scramble—undignified, at least, for a man of my age. I began to feel that I *was* in a pickle for once, without any mistake; but just then the woman turned her horse's head and rode by on the other side. I suppose you might have heard my long breath of relief quite a distance.

I put my wheel across my shoulders, my head going through just under the seat, and once more waded the river. Catch cold? Not a bit of it. I knew I should not catch cold so long as I kept up the perspiration; but I felt that I could not go on without a brief glimpse of that wonderful spring. When I essayed to put on my sweaty woolen drawers, however, I was startled to find that they would not go on any way. I hadn't a minute of time to spare to fuss with them, so I wrapped them up with my overcoat and undercoat, and tied the whole between the handle-bars. Then I crossed the stream and found my way to Bennett's Mill. The great spring was about a quarter of a mile out of my way. I waded the river again, and followed it up to the cliff, and there, sure enough, was the great limpid pool. The water is so clear that you look down into a frightful chasm, and away back under the cliff, and then down into what looks like a bottomless pit. Nobody has ever yet been able to find any bottom. Now wait a minute until you understand. The water comes up with such force that even a chunk of lead is thrown out by it, and will not sink; and the same way with all attempts at forcing a pole or rod down into the crater of this watery volcano. A queer sense of chilliness began to admonish me that my safety depended on getting up perspiration again. A succession of hills, such as I had first passed on the other side of the river, soon warmed me up; but my strength was giving out. The dinner I took hastily at Plad was not a very inviting one nor a very nourishing one. The heavy load of clothing between my handle-bars seemed to take a good deal of strength. A wagonload of boys came up behind me, who had been fishing for speckled trout in the waters of this spring. Without stopping to think, I gave one of them a dime to take my bundle and leave it at the postoffice. This left me toward sundown, in my shirtsleeves, my thick woolen drawers suddenly dispensed with, also from 15 to 20 miles from my destination. Never mind. Relieved of that heavy burden of useless clothing, my wheel started up like a young colt, and I just bounded over hill and dale, rejoicing in freedom for my muscles as well as being relieved from useless weight. After an hour of pretty brisk riding, however, up and down the hills, I felt my strength going again. There was no time for any more naps, nor even for any more refreshments; but I decided to stop at the first house and give almost any price for a glass of milk. The road was pretty fair, but it was still on the ridges, and houses were very scarce. I finally found one near the road; but nobody was at home. A

boy in the garden said they hadn't any sweet milk, but he guessed he could get me a glass of buttermilk.

"All right, my friend," said I, "give me the buttermilk," as I threw a coin on the table. Now, although I am so much addicted to drinking milk by the pitcherful, I never took very kindly to buttermilk, and this was *sour* too. It was a pretty critical time, however, and I could not afford to be fastidious. The buttermilk gave me strength, but not very much. Then the road forked, and one part was traveled about as much as the other. There was no house in sight. I went a little way on one branch, but felt so sure it was wrong I turned and took the other. This other road dwindled down until it became a mere cowpath, without any sign of a wheel-track. Oh how I did long to see somebody who could answer a brief question! By the way, how many times through Missouri I would have given dollars for a signboard! I am told that the boys have a fashion of smashing them up as fast as the authorities can put them up. Accordingly, the boards they do put up are so cheap and inefficient that one can not read the lettering after a good hard rain.

I thought of Mrs. Root, ten miles away, watching down the road for glimpses of myself and wheel. Just before me was another steep hill, up which the cowpath ran, with rocks and stubs where the brush had been chopped off all the way. But at the top I thought I saw a tow-headed child running about at play. I toiled laboriously to the top, but there was no child to be seen. There was not even a glimpse of any house of any kind—not even a fence. I was alone in the wilderness. Once more that little prayer came almost of itself—"Lord, help!" and then I pushed on. It seemed from the looks of things that this deserted road must soon disappear entirely; but after that little prayer my heart lightened in some way, and I did not feel so much alone nor so much lost as I did before. A little further, and what do you think? My path came out into a beautiful, well-traveled, smooth road, and a company of movers told me I was only three miles from Lebanon. I was thirsty, hungry, and tired. I made up my mind that the first thing in the shape of a hotel or restaurant would have to be patronized, even though the minutes were getting precious. Oh, yes! here it is. A bright, clean-looking sign-board hung out right over the sidewalk—"Farmers' Home."

"My friend, how soon can I have some supper?"

"This very minute, sir. In fact, we are just sitting down to supper."

I explained to him that I wished to ride out in the country about five miles before dark, and I wished he would have my supper on the table by the time I got washed. Let me explain that Lebanon, Laclede Co., Mo., has quite a fame for its magnetic and electric wells. I will tell you more about them later. As I commenced to wash I asked the clerk if that was the celebrated magnetic waters. He said it was. It seemed almost like the water from the spring I had just left, and probably it is the same, although they have drilled 1200 feet to reach the vein. But, didn't I have a nice supper! Pulling out a handful of change I said, "How much?"

As he said, "Twenty cents," I gave a whistle and threw down a quarter.

"Why, my dear sir, you probably did not notice what an enormous supper I have eaten."

However, he handed me back a nickel, saying, "I am very glad, sir, if your supper pleased you; but our regular price is 20 cts., and I prefer not to take any more. This is a farmers'

hotel, and the farmers about here have been having a pretty tough time. They get only about 35 cts. a bushel for their corn and wheat, and so you see these provisions do not cost us very much. So we try to make prices so low that, when they come to town, they will not feel guilty if they invest in a good warm meal, instead of bringing along a cold lunch."

Now, who is it that says there are not any good people left in the world?

Well, I was ready for business once more; but just as I got in the outskirts of the town, and began to feel it would be dangerous to ride in the darkness over those peculiar roads, a fiery meteor blazed above my head, lighting the landscape far and near. It was not a *real* meteor, after all, but only the electric lights of Lebanon. Although the town has only about 2000 inhabitants, the place is beautifully lighted by arc-lights suspended above the center of the streets. After making half a mile by the aid of the electric lights I began to feel chilly, and remembered that my woolen stockings were in my hip-pocket instead of on my feet. While sitting on the bank, putting them on, a man passed along. I explained to him that I was not a tramp, and got some better directions how to reach my wife's brother's place. I rode about a mile further, then left my trusty wheel at a house by the roadside. I went on foot about a mile, and, finding my strength giving way, I began to long again for a little relief. Hark! Is that a buggy coming? Sure enough, it was. I stopped the driver and begged for a ride. In a few minutes I was not a stranger, for the driver's aunt used to keep bees and take GLEANINGS, and he volunteered to carry me right to my brother-in-law's door. But I was getting chilly again. Remember, I was in my shirtsleeves, without my underclothing, and riding in an open buggy. There was nothing to do but to get out and walk again, in order to keep up the temperature. I was pretty well rested, however, and it was only a mile to my destination.

By the time I was pretty well used up again, the light of the house in question delighted my eyes. A sort of lane turned up toward the barn. I concluded this would be a shorter cut than going through the front gate. But I looked in vain for some kind of gate or bars to let me through the close barbed-wire fence. After I had got on past the house, on my way to the barn, I saw a figure at one of the windows, that looked like Mrs. Root. I believe my heart began to beat about as fast as in years gone by before she became Mrs. Root. Now, she has many times scolded me because I would try to climb through wire fences. But I concluded to disobey just once under the circumstances. There was some sort of board fence back of the barbed wire, and with much care and pains I got to the top, and found the board fence so rickety that it would hardly hold my weight. I picked my way among the sharp barbs, however, and got down on the other side, only to find a similar fence right before me. I felt like the man who said he had fallen over three cradles in trying to get into his home after dark, and there was another right before him. But I finally got over the last fence, and then I could not find any door to the house. Somebody had a light in the back kitchen, and I came up to the screen door. A nice young lady had the lamp. I was not perfectly sure that it was any of my relations, but I took the chances.

"Now, look here. How does a body get into this house, *any way*, with all these wire fences, rose-bushes, and ever so much other stuff in the way?"

"O *Uncle Amos!* is this indeed yourself at last?"

At this exclamation the whole family piled into the back kitchen, and I was finally supplied with all I needed, given the best seat and plenty of flannels, and, like the prodigal of olden time, I was invited to sit down to a well-spread table, and partake of roast turkey which my stalwart young nephew "Thad" had "shot" the very day before, in honor of my approaching visit.



In a recent sermon by our good pastor, J. R. Nichols, I was so much impressed by one or two points that I asked him to write up that portion for the readers of GLEANINGS. You will find it below:

ARMED WITH THE MIND OF CHRIST.

Forasmuch then as Christ suffered in the flesh, arm ye yourselves also with the same mind; for he that hath suffered in the flesh hath ceased from sin; that ye no longer should live the rest of your time in the flesh to the lusts of men, but to the will of God.—1. PETER 4:1-2 (New Version).

"The sufferings of Christ" is the theme of this epistle, which moves on a high plane of moral grandeur and heroism. As we learn in the introduction, it was addressed to the elect, scattered through the provinces of Asia, who had not only been driven out by persecution, but were now suffering persecution on account of their belief. The author's aim is to encourage and sustain them in their trials, and this he does most successfully. He first salutes them as heirs of an inheritance "incorruptible, undefiled, and that fadeth not away," in which they are able to "rejoice with joy unspeakable and full of glory," even though now for a time they may "suffer heaviness." He recalls to their mind the fact that their redemption has not been purchased with "corruptible things, such as silver and gold," but "with the precious blood of Christ, as a lamb without blemish and without spot," and then, advancing to speak of their suffering and hardships, he reminds them that they ought not to be unwilling to suffer for the name of Christ, since he suffered in the flesh for them; and this is the ground of his argument and appeal, to which he returns again and again in the progress of his epistle. In these verses the apostle is approaching the conclusion of his argument, and he draws a practical application or lesson: "Forasmuch as Christ suffered in the flesh, arm ye yourselves also with the same mind."

I want to impress upon you, at this time, the importance of being armed with the mind of Christ in regard to sufferings and afflictions as a means of purging us from sin, and preparing us to do the will of God.

"The suffering of Christ," which is the theme of this epistle, is also the groundwork of the whole gospel. Leave this out of the thinking of the last nineteen centuries and you utterly revolutionize the Christian thought of the world. We have in the suffering Savior "a man of sorrows and acquainted with grief." Peter has before spoken of the sufferings of Christ, and the glory which shall follow. Paul also speaks of his desire to "know the power of his resurrection and the fellowship of his sufferings." There is sin in the world, and it requires

suffering to get it out. This is God's chosen way, although many fail to approve it. Time was when this plan did not meet even Peter's approval. When Christ first announced to his disciples that he must go up to Jerusalem and suffer many things of the scribes and Pharisees, Peter took him apart and rebuked him, saying, "Be it far from thee, Lord;" but Peter has now been converted, and has been led to see the wisdom of the divine way.

Some say sin can be educated out of the world; but the experience of Greece, as well as of modern times, has conclusively shown that a trained mind is often found in the same body with an evil heart. Some of the brightest men of the ages have been fiends incarnate. Sin will endure a marvelous degree of intellectual culture. Some are in favor of doing away with sin by means of resolutions—pass resolutions against it; but experience has proven that it will stand any number of resolutions. It thrives on resolutions. Some say, "Love it to death." This is well; but how are we to show our love for men? Does a mother show her love for her child by caring for it and fondling it when in health, and turning away from it in the hour of sickness and suffering? There is no way one may so effectually show his love for another as by suffering for that other. So Christ showed his love for us by suffering for us in the flesh. This theme underlies every correct conception of the blessed truth of the Christian religion. It was in this way that Christ declared his sympathy with us and his undying love for us; while at the same time revealing his intense hatred of sin. We ought never to lose sight of this fact nor its tremendous significance—that Christ suffered in the flesh.

But the apostle next calls our attention to a practical inference or lesson from this theme; viz., that, since Christ hath suffered for us in the flesh, we should arm ourselves also with the same mind. Peter addressed these Christians as if they were engaged in a warfare, and he uses a military figure—"Arm ye yourselves"—taking the mind and purpose of Christ in relation to his suffering as a weapon of both offensive and defensive warfare. Take his loving spirit into your heart to protect you in the midst of your conflicts for Christ and your faith. Be willing to suffer for him; he has for you; "endure hardness as a good soldier of Jesus Christ." Christianity appeals to the heroic in human nature. It calls upon us to be strong and courageous in the midst of trials, suffering, and persecutions. We ought not to look upon suffering in the flesh "as though some strange thing had happened to us." This heroic spirit is quite too rare among the professed followers of Christ in the present day. Too many desire a religion of convenience, which does not call upon them for any disagreeable service or unwelcome sacrifice. They do not want to forego any pleasure, or be thought peculiar, or even leave their warm firesides, for Christ's sake. Some seem to think that Christ has borne all the unpleasant things, and they have only to reap the reward of his sacrifices and sufferings. The command, "Be ye not conformed to this world, but be ye transformed by the renewing of your minds," seems to have been dropped out of the Bibles of many people. The fact that other people do things is to many a sufficient warrant for doing them. Because others dance, and play cards, they must do the same. The fact that others violate the Lord's day by taking long trips on their bicycles is a sufficient warrant for

them to do the same. The words of this text, "Arm ye yourselves with the mind of Christ," should be proclaimed with emphasis from the Atlantic to the Pacific, and from the Lakes to the Gulf. This is a test of our personal loyalty and attachment to Christ. The loyalty of many disciples is put to shame by the attachment of soldiers to their earthly commander. At Austerlitz, we are told, the soldiers of Napoleon extracted from him a promise that he would not expose himself to the bullets of the enemy before they would go into battle. Are we willing to suffer hardness for Christ that his name may be honored among men?

And now follows a remarkable (and in some ways a surprising) statement: "For he that hath suffered in the flesh hath ceased from sin." Manifestly this statement can not refer to Christ, so far as active participation in sin is concerned, for he "knew no sin;" but it can refer to him so far as the annoyance and reproach of sin are concerned, and also in relation to the atonement for sin, and by analogy to us so far as the power of sin is concerned. This phrase may be paraphrased as follows: "The suffering one has ceased (or is ceasing) from sin," referring to the effect of suffering in the flesh, in purging our mortal bodies from the craving for and the love of sin. Christ by his death saves us from the penalty of sin; suffering with Christ, and sacrificing for him, delivers us from the reign and power of sin. Herein is the reason why we are enjoined to arm ourselves with the mind of Christ, that, through suffering and sacrifice, we may purge away the desire for sin, and break its power over our lives. This shows the benefit of suffering, sorrow, and the discipline of loss in the moral government of God. They were not instituted in an arbitrary manner to gratify a caprice or feed a spirit of revenge on God's part, but they are permitted as a part of our discipline for the "inheritance incorruptible, undefiled, and that fadeth not away." We find by experience that enduring hardness for Christ is better for us than reclining on flowery beds of ease, or luxuriating in pleasure. A life that is full of self-indulgence never helps one to cease from sin, but leads one farther and farther away in the path of sin and disobedience; but pain, suffering, loss, disappointment, and trial, borne in a meek and quiet spirit, do help us to gain the victory over sin and the flesh. In my experience as pastor, which, though not extended, I think is representative, I have known many people to be brought to Christ through loss of friends, loss of property, and through adversity, meekly borne, but never a one through indulgence or self-gratification, or worldly pleasure or prosperity. Those who have learned to love Christ and serve him are rendered grateful by success and prosperity; but these things in themselves do not bring men to acknowledge God and hate their sins. A recent visit to the factory where hollow-ware is manufactured gave me an illustration of this truth. The pots, kettles, and gridirons come from the molds rough, uneven, and unfit for use. Before they are fit for service they must be put on the wheel and tried as by fire. The wheel is rough and hard; and as the rough edges are smoothed down, and the rough places made smooth, the fire flies but the work is done; so if we would be meet for the Master's use we must be put on the wheel, and tried as by fire. It is the cross that destroys sin and saves men—not the soft strains of music nor the gliding of dancers, nor the shuffling

of cards nor the sound of revelry and mirth. But here I need utter a word of caution; some are ready to say, "If suffering and loss are good as a means of purging away sin, and fitting one for the service of God, then let us seek them as an end." Not so. Remember, we are enjoined to arm ourselves with the mind of Christ. Christ never adopted the method of the ascetic or the anchorite, and inflicted pain and suffering upon himself. He did not wear a coat of camel's hair, nor stand on one foot, nor cut himself with the lancet, nor hold his hands for hours above his head as a means of pleasing God. These are the methods of the religious fanatic. Christ went straight ahead in the performance of his duties and in doing the will of God; he met the suffering and loss and sorrow that came to him. He never went out of his way to seek them, nor should we suffer them as an end to be sought in itself; but they are to be endured in the way of the performance of duty, when God permits them to come upon us. The brighter experiences of life have also their mission. Let us not despise them; but they can not do for us all that needs to be done.

But the second verse in our text calls our attention to the reason of this purifying discipline; viz., that we should no longer live the rest of our time in the flesh to the lusts of men, but to the will of God. In reading these words I like to remember that Peter wrote them. I imagine he was thinking of the wayward, impulsive years which preceded his full consecration to Christ. No one was better fitted than Peter to give utterance to these sentiments. He knew, all too well, how he had been brought to do the will of God. The first great victory over sin is to be won right here in this world. The process is severe; viz., suffering in the flesh; but the result is glorious; viz., crucifying the lusts and enthroning Christ in the heart.

In time past you have been content to live to the natural desires of the heart; but henceforth ye are to live to the will of God, if ye would be his disciples. The difference between living to the lusts of men and to the will of God is as wide as eternity. We are not to understand the word "lust" as referring necessarily to things that are immoral, but to the uncontrolled desires of the natural heart. The Christian is not to live to the gratification of his own desires, but to do the will of his Father which is in heaven. My brother, if you are to be a child of God you must break with sin—with every known sin, at any cost, even at the cost of suffering in the flesh. I desire to make this point very clear and emphatic in my ministry, God helping me. I see those every day who are making a failure of their Christian life, and others who have no joy in their Christian living, because they are living their time here in the flesh to the lusts of men and not to the will of God. The only successful Christian life is that which is not devoted to pleasing ourselves, but to doing the will of Him who hath redeemed us with his own blood. Any other is such in name only. If this distinction between living to the lusts of men and to the will of God be not a real distinction, then there is no Christian life, and our faith is vain, and our hope is vain; but it is a real distinction, and the end set forth is, through Christ, possible to every man. May you all attain to and be heirs of that "inheritance incorruptible, undefiled, and that fadeth not away."

There are two things in the above that took a strong hold of me. The first is as our pastor

has paraphrased it: "The suffering one has ceased (or is ceasing) from sin." I have been learning this grand truth for years; but I do not know that I have ever before realized it as I do now. Years ago I read a little story somewhere about the American Indians. A certain tribe was in great peril. In fact, the chief of the tribe was in deadly peril, and yet his people were indulging in drunken orgies with whisky furnished by white men. Very likely these same white men were the enemy that threatened the extinction of the tribe. A missionary, however, was in the vicinity. The odds seemed tremendously against him; but he decided, however, to make a desperate effort to save the Indians. Perhaps some of them had made a feeble start in Christianity. The man of whom he had expected the most was among the drunken crowd, and himself intoxicated. The missionary managed to make him understand the condition of affairs. They were near a little lake at the time, it would seem; and this drunken Indian, when he dimly realized the situation, without a word plunged into the lake. After a severe self inflicted ducking, he came out and tried to talk. His cold-water bath was hardly sufficient, under the circumstances, and into the lake he went again, and ducked himself so thoroughly that the missionary was frightened, and tried to have him stop. I can not remember exactly his reply, but it was something like this: "Me stop? stop and keep on with these drunken fools? stop when the *honor* of our *tribe* is at stake, and our *chief* in danger? No, no!" And down he went into the cool waters again and again, until he was a sober man. I think the tribe was saved through this one brave man. Well, I have not had exactly the experience of this poor Indian, but I have a good many times got into a way of straying away from the path of duty. It has been more often in *thought* rather than in *deed*, and sometimes it really seems as if nothing would awaken me to a sense of my danger, or to a sense of the responsibilities that rest upon me, except some real trouble. Perhaps I have been indulging in something I knew was dangerous. I struggled feebly against the temptation until some real trouble startled me. May be some dear friend of mine, a professing Christian, is getting astray in the same direction as myself; but having had fewer experiences, or having less strength of character, he is going a great deal further than I have been. At such times it has seemed almost as if I could hear the prophet Nathan uttering those scathing words that he spoke to David: "*Thou art the man.*" At other times I could almost hear a voice within me saying, "There, old fellow, that is *your* own doing. You may not have realized it, but it is the direct consequence and *result* of the example you have been setting before others." I can not tell you how thoroughly I have repented at such times. Remembering the story of the poor Indian I have said to myself, "Here, you poor miserable unworthy fellow, this thing has been going on almost before your very eyes, and you are too much taken up with self and selfishness to even notice it. Like the poor Indian, you were wasting your time in getting drunk* when you ought to have been not only setting a right *example*, but praying and pleading with the weaker ones around you." Again and again has suffering or danger or trial of some kind roused me up and made me ashamed

of myself. Again and again have I said to myself in my closet, "O God, forgive me for my sin and folly. Forgive, and receive me once more to thyself, and help me to remember this bitter lesson. Forgive me for *forgetting* my responsibility; and help me to rescue these friends, and bring them back to Christ Jesus." Why, I have sometimes thought that, if I did not have disappointments, troubles, aches, and pains, I should not be good for any thing at all. Sometimes a *toothache* has made me ashamed of some selfish weakness that was filling my thoughts up an hour or two before. Now for the second point:

Our pastor is a man of wide experience. He is a highly educated and well-read man, and yet what startling words are these! "I have known many people to be brought to Christ through loss of friends, loss of property, and through adversity, meekly borne, but never a one through indulgence or self-gratification, or worldly pleasure or prosperity." I wish to call attention to the concluding words. He has never known a single person brought to Christ through worldly pleasure or prosperity. Dear friends, can this indeed be true? I know something about how many of us are praying for things that are really little more than worldly prosperity. But can it indeed be true that, when God grants our prayers—when he gives even *more* than we prayed for—that these very gifts and blessings *never* lead us to him? I am glad, however, of the words that follow, that our pastor has seen those who serve him rendered *grateful* by success and prosperity. Well, if these things be true (and, dear friends, I think we must all admit that there is more or less truth right here), should we not then try harder to receive trials and suffering with meekness and humility? You remember the old hymn:

Nearer, my God, to thee,
Nearer to thee,
E'en though it be a cross
That raiseth me.



THE GAULT RASPBERRY.

From the number of inquiries, it would seem that there are many who wish to know more about this new raspberry. I confess I have been a little cautious about recommending it, because so many things of which we expected much prove to have grievous faults—the Timbrell strawberry, for instance. The Gault raspberry has thrived for me one season. It has shown itself to be a most robust, rank, and thrifty grower, and does not seem to be troubled with anthracnose, blight, or any thing of the sort. After my return from Missouri I found great whopping berries under the foliage, down in the dirt. The weight of the berries brought them down. Besides its everbearing and persistent-bearing habit, it has a queer fashion of sending out now and then a great broad shoot having more the shape of a leather strap than that of a raspberry-cane, and some of these monstrous growths look more like the *tug* of a harness than a leather strap. Well, the funniest part of it all is, that this great big green abnormal shoot will put forth a bunch of berries more like a heavy stem of grapes than any thing else. On next page is a picture of one of them.

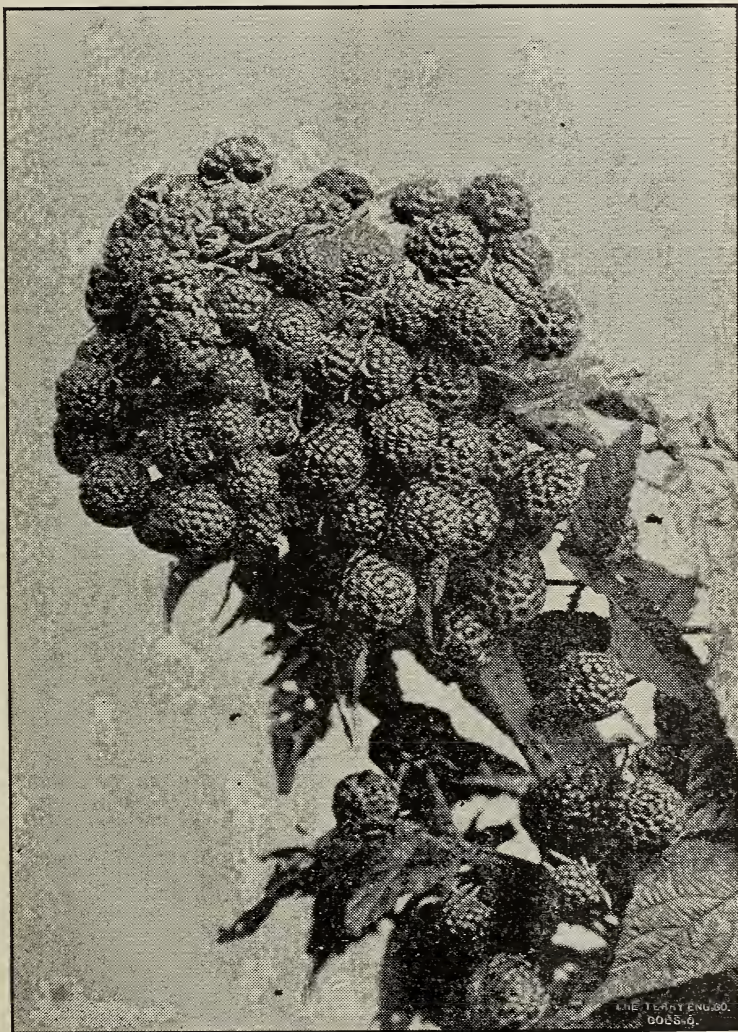
Mammoth clusters like the above not only appear here and there in friend Gault's planta-

* I know that some of the friends will remonstrate against the extravagant language I am using right here in regard to myself; but please consider that, in the *sight* of God, my offense might have been as great as was getting drunk for the poor Indian. "Unto whomsoever much is given, of him shall be much required."

tion, but there have been quite a number of them on my own grounds. We do not find them on every bush, mind you, but, say, one in every four or five hills—that is, one having more or less of this extravagant growth, perhaps only one in a hundred showing such a mass of fruit as is shown in the cut below.

In regard to our offer, we are not at liberty to sell a single plant for less than 50 cts., nor a

is not to be counted on any other premium, and you must get us a *new subscriber*—at least, one who has not taken GLEANINGS for several years. I may add, that the berries, so far as my experience goes, are the largest and most delicious of any blackcap raspberries I have ever found anywhere. If picked before they are dead ripe they are as firm to market as any blackcap raspberry. When they are so ripe, however,



A CLUSTER OF GAULT RASPBERRIES, FROM A PHOTOGRAPH.

dozen for less than \$5.00. But any one who pays for GLEANINGS for 1895 can have one Gault raspberry for 25 cts. And now we will make a still better offer. Any one who will send us a *new subscription* can have a plant for his trouble; that is, you, a *subscriber*, show our journal to your friends, and get somebody who does not already take it to subscribe. you sending us a dollar, then you will get a raspberry-plant without sending us any more money except the dollar. Of course, when you do this the name

that they are ready to drop off—and this is, in fact, the way I like them for my own eating—they would be rather soft to ship.

A POTATO STORY.

On the 24th of April, 1894, the following letter was placed on my table:

Mr. Root:—Knowing that you are interested in any thing new (when it is better than any thing else) I mail you a sample of a new potato I have. I wish you would plant them and see how they yield,

and then try them as to quality. I think they are the best potato for quality that I ever saw. I enjoy reading Home talks and Gardening in GLEANINGS, and should like to run up on my wheel and see you this summer if I could get time. GEO. E. CRAIG.
Zimmer, O., Apr. 20.

Soon after, the mail brought us two very large fine handsome potatoes. I looked at them, and they were then put away with other potatoes sent to be tested. I did not have very much enthusiasm in the matter. I confess, for I have been testing potatoes a good many years, and it is a great deal of trouble, with the many cares I have on my hands, to keep the letters of description, and the stakes so they can be identified at digging-time; and, besides, all my potato experiments have never amounted to very much—that is, in the way of testing new varieties. I think it must have been some time about the first of May that I got ready to plant our potatoes to be tested. A little corner down in the creek bottom, too small to be plowed, was spaded up. As it is within 20 feet of a creek which in summer time is four or five feet lower down than the garden, the piece has excellent drainage. As no manure was handy when we spaded it up, none was put on the ground—no fertilizer of any sort. I think there were six or eight different varieties of potatoes to be tested. They all came up and started off nicely; but when the dry weather set in I felt a little sorry for them, not having any manure like the rest of the ground; and so, after giving them a good hoeing, some coarse manure was spread between the rows as a sort of mulch. None of the potatoes attracted any particular attention, except an extra early potato. The man who sent it said they would be ready to dig about the 4th of July, and that would be about eight or nine weeks after planting; and, sure enough, we had pretty fair potatoes about that time. The vines soon died down after this. The rest all went down one after another. It did not seem to be blight, really, but, rather, that they ripened and dried up rather prematurely on account of the drouth. There was one exception, however. The little bit of ground is triangular, so that each one of the six rows is a little longer than the one next to it. The last row, in fact, consisted of ten hills. These ten hills were made by cutting one of the large potatoes sent by friend Craig, so as to make ten eyes; but the other one of the two potatoes disappeared, and we have never found where it went. These ten hills came up very promptly, grew with remarkable thrift, and never stopped growing till the frost killed them about the 5th of November. At that time each hill was an enormous mass of foliage. Some of the vines were almost as big as a broom-handle where they came out of the ground. You see, they were planted on the one-eye-to-the-hill system. There was considerable talk about these ten hills of potatoes with their rich dark-green foliage all summer long entirely free from bugs, blight, or the effects of the severe drouth. They were dug while I was in Missouri, and made just about an even bushel of the largest and handsomest potatoes I ever saw. In fact, they were so handsome that some of them "got away" until the man who had them in charge nailed them up.

Now, this is a test of only a single season, with just one potato. It would be rather hasty to decide from this single test what the potato is really worth. I wrote to friend Craig to know what he could tell us about them. Two of the large potatoes were cooked, to compare with the Freemans. If they are not fully as good, they are pretty near it. The potato is more nearly like the Rural New-Yorker in appearance and habit than any other potato I know

of. From this one test, it seems to me considerably ahead of any thing else in the line of potatoes I have ever had any experience with. The following is the letter:

Mr. Root:—The potatoes that I sent you for trial are a new variety that we raised from seed from the balls that grow on the potato-tops (but then, you know how to raise new varieties), and we think it is the best potato we ever had any thing to do with. That is the reason I sent those to you for trial. It has been eight or ten years that we have been raising them, never having sold any at any time to any one. I sent two to Wm. Henry Maule the same day I sent those to you, but have not yet heard from him as to how they have done with him.

I have over 200 bushels; but as to what I will take for them, I would sooner have you see them, and see what you will give per bushel for as many as you want.

I don't remember ever having the potatoes blight; but bugs will eat them, although I was not troubled with them this year or last either. They always outyield all others with us. Last year I planted two bushels of Northern Spies, which yielded almost the same; but this year the same variety was not worth digging. My grandfather has raised them three or four years (under promise to let nobody else have any of them), and he likes them better than any others. Last spring I let Mr. J. J. Zimmer, here at Zimmer, plant some of them for me, I to have every potato he raised. He planted about twelve other varieties, and mine was the best of all. Some of the others were not worth digging. I had thought of advertising them and selling a part of them, and of planting a lot of them, say fifty or one hundred bushels, so as to have a large stock next year. I do not think \$5.00 per bushel any too much this year. Carman's No. 1 is \$10.00 per bushel, but I do not believe in charging that much for the bushel.

GEORGE E. CRAIG.

Zimmer, O., Nov. 19.

Now, friends, I have given you the full facts in the case. Friend Craig is at liberty. I presume, to charge what price he chooses for his 200 bushels. I think that, before anybody invests very heavily in them, we had better have them tested on different kinds of soil. I wish that some of the experiment stations could have tested them at the same time I did. As for myself, I rather think I shall plant the most of my creek-bottom ground to the Craig potato, even if I do have to pay \$5.00 a bushel for seed. The potato has no name that I know of; but I suggest calling it after the originator.

KEEPING SEED POTATOES FOR LATE PLANTING; A SUGGESTION FROM OUR OHIO EXPERIMENT STATION.

Friend Root:—In GLEANINGS for Nov. 15 you speak of the nice Freeman potatoes that you have grown by planting them late; but your main difficulty seems to be in keeping the seed in good condition for planting as late as you want it. Now, I have tried a plan of keeping the seed for late planting, for two years, that has given first-class results. It is simple and easy; and, even if it has been published before, it will do no harm to repeat it.

Take your potatoes from the cellar or pit as soon as there is no danger of freezing, and before they have become sprouted, and place them in a thin layer in some cool, light, airy place, and let them stay there until you want to plant them; and when you come to look at them there will be short stubby sprouts on them that are not easily broken off, and will come up quickly when planted.

Last spring, at planting-time, I took what seed I wanted, and put it seed end up in our flats that we use for transplanting plants, and put it overhead in the barn; and when I was ready to plant, June 28, it was in good condition for planting, and could, undoubtedly, have been kept for several weeks longer. It came up quite well, and gave the best yield and the

most potatoes that we grew anywhere on the farm, notwithstanding the dry season.

Small potatoes answer nicely for this purpose, as they usually make but one sprout.

I think the plan of planting potatoes late a good one, and one of the best ways to escape the blight, that usually hurts potatoes unless they are very early. Quite often there is a good piece of rich ground that could be made to yield good returns when otherwise it would have to lie idle.

E. C. GREEN.

Wooster, O., Nov. 23.

STRAWBERRIES—REPORT OF OUR OHIO AGRICULTURAL STATION FOR 1894.

Bulletin 54 is just at hand. It is quite a pamphlet of 52 pages—in fact, the best station report on strawberries I have ever come across. It is really a valuable strawberry-book, and at the same time it is a report of the work of our two friends W. J. and E. C. Green — men who have not only brains, but money furnished by the State at their command. The State also pays them for their intelligence and brains, and they are entirely disinterested parties. Their report is given without fear or favor. Notes on varieties comprise something like ten pages, and they include almost every thing that has been offered for sale. In their summary, at the close of the report, they mention the following list of the most promising of the *new* varieties: Aroma, Belt's No. 3, Brandywine, Brunette, Cyclone, Granville, Huntsman, Ivanhoe, Leader, Leviathan, Marshall, Princess, Portage, Princeton Chief, Riehl's No. 6, West Lawn, Woolverton.

The next list they class as *doubtful* among the new varieties:

Auburn, Beverly, Banquet, Epping, Early Bird, Governor Hoard, Jay Gould, Lanah, Maple City, Robinson, Southard, Smeltzer's Early, Swindle, Shuckless, Timbrell, Tucker, Williams.

You will notice that our "dear friend the *Timbrell*," that has been so much boomed, comes in this latter class. The only fault with it, however, is that it is white in spots, like the old Sharpless, even when it is ripe. Next we have a list of *poor* ones among the new varieties:

Eclipse, Gillespie, Michel's Early, Meek's Early, Regina.

It is a little sad to find Michel's Early in this last six, especially since we have decided to give it a place in our own catalog. Well, I shall consider Michel's Early a valuable variety until we have something equally good, equally early, perfect-flowering, and as fine a berry. If it were more productive, I confess I should think a great deal more of it. Our station friends mention a new variety which they call "Unnamed No. 1," perfect in bloom, ripens about the same time as Michel's Early, and is much more prolific. The only trouble with it is, the berries are rather small.

Now, then, comes the summing-up of the best varieties among those that have been thoroughly tested—the cream of all the strawberries well known.

Bubach, Crescent, Enhance, Greenville, Haverland, Lovett, Muskingum, Parker Earle, Warfield.

Is it not a little refreshing to find that, out of nine given in the above list, four of them are already in our own catalog? The other five have all been *tested* on our grounds.

This strawberry bulletin is furnished free of charge to every resident of the State of Ohio. I suppose friends in other States can get it if they apply before the edition is exhausted. I believe I can heartily indorse almost every

point made by it unless it is the matter of fall planting. With our grounds so heavily manured, and with water convenient, we make as much of a success of fall planting as we do in the spring; and, in fact, we get *better* results when we make it a point to put in strawberries wherever a piece of ground is vacated, and we do this all through the season, from July till November.

OUR NEW ELEVATOR, AND SOMETHING ABOUT ELEVATORS OF OTHER KINDS.

And they come . . . and see him that was possessed of the devil, . . . sitting, and clothed, and in his right mind.—MARK 5:15.

YES, dear friends, the machine is giving us just as much satisfaction and pleasure as it did when I wrote it up last April. The matter of elevators, however, was brought to mind by reading something in regard to General Booth and his work. He too has been making a hobby of elevators, and his elevators are likewise made to elevate human beings. Perhaps the word "humanity" might express it better. In that great industrial work of his in London there is a special department of the work that is called the Elevator Department. Men are taken from the slums of London, from their drink and filth, and elevated through Christ Jesus until they become men of sense and wisdom. Well, this little band, or army of men, who have been thus elevated have begun already to take pride in being called "Elevators." Not long since, the Salvation Army gathered up some new recruits, and I judge they were pretty hard-looking customers. When they were brought to the Industrial Home, and preparations were being made to put them in with the rest, some of the older ones began to object. As nearly as I can remember, they worded it something in this way:

"Why, do they expect to take these 'dossers' and put them right among us elevator folks?"

The contrast was too great, you see; and yet these very people who rejoiced in the name of Elevators were not a whit better a few months before that than the little band of "dossers" with their dirty bodies, poor clothing, and benighted intellects. May God be praised that there *are* elevators to lift undying souls, as well as to raise these poor mortal bodies of ours; and may the whole world be moved with a heavenly impulse to spring forward and take these friends of the Salvation Army by the hand; and not only that, may the impulse be world-wide that has already been started in such a grand undertaking as *elevating* both men and women who have got "away down." Elevators indeed! Who but General Booth would ever have grasped such a thought? and not only that, but proceeded at once to make it one of the real working and prospering institutions of the age? Shall General Booth be the only one in this world of ours who is in the elevator business? God forbid!

A. I. R.

PATENTS

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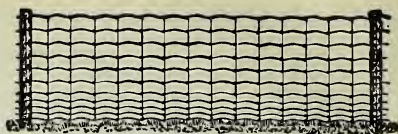
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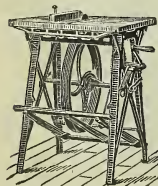
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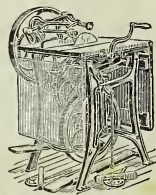
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